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LIFE

Its Foundation

and

The Means For Its Preservation

by

Julius Hensel

JUN 15 1970

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LIFE

ITS FOUNDATION
and
THE MEANS FOR ITS PRESERVATION

A physical explanation for the practical application of

AGRICULTURE, FORESTRY, NUTRITION,
THE FUNCTIONS OF LIFE,
HEALTH AND DISEASE AND GENERAL WELFARE

by

Julius Hensel † 1903

Pharmaceutical and Physiological Chemist
Stuttgart, Germany

"If Life is in contradiction with science,
then Life is always right."

Justus von Liebig, German Chemist

Published by Charles Schindler Edition
"Seerose" Hergiswil NW, Switzerland

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Julius Hensel

With all thy getting get a better understanding of the chemical processes of life, it is the foundation and essence of all knowledge. - Indeed chemistry gives us the key to understand all events of life, it gives us a clearer vision than if some miraculous ointment had been applied to our eyes.

Evolution and enlightenment go hand in hand and are the only means to fight: Ignorance, Poverty, Hunger and Disease.

Return to Nature. Obey its unfailing laws and it will reward you a hundredfold with:

JOY OF LIFE, BUOYANT HEALTH, WEALTH AND WISDOM.

Julius Hensel

Publisher's Preface

It is a great pleasure and honor for me to present to the open-minded and unshackled English-speaking peoples of the world an English translation of *Julius Hensel's new theory on the chemistry of life.* It consists of the following works: *Das Leben* (Life), its foundation and the means for its preservation, with a section devoted to his chemical history of creation, *Makrobiotic* (the only work previously translated into English, *Macrobiotic,* published by Boericke & Tafel, 1001 Arch Street, Philadelphia, Pennsylvania, U. S. A., at the beginning of this century), about diseases and their remedies, and several smaller works, making a total of more than one thousand pages of German text, which I have condensed and edited for the sake of clarity, and revised to bring the applications of Hensel's theories up-to-date.

Hensel was first a pharmacist for twenty years when he equipped himself with chemical and physical knowledge and experience. Thereafter he studied medicine in Switzerland and found that he was able to see many things in a clearer light than that in which they were presented by the professors of the medical school. What especially struck him was the view taken by the teachers of medicine that the general facts of chemistry could not be applied to the processes of life. They taught that the human body is "not a retort." With this erroneous dictum the most important, fundamental and universally accepted chemical facts were ignored and rejected. On the contrary, it is exactly the chemmistry of the elements with their peculiar properties and unfailing laws of concentration and separation, which by means of a few simple figures and equations can shed the necessary light to enable us to understand the apparently most difficult processes of life.

These works were written during the years between 1884 and 1903, the year of Hensel's death. In this book I have used the figures given by Hensel for the atomic weights of the elements rather than transposing them into the present accepted weights.

During the Hitler regime in Germany, Hensel's epoch-marking books on his chemistry of life were burnt (accidentally or deliberately) and thus inconceivable mischief has been done to the health of man, animal, plant, and soil the world over. My endeavor has been to present the English translation in plain understandable chemical language, beginning with *Bread from Stones,* explaining how under the electric sunlight the *burnt* products water HHO and carbon dioxide COO, together with the minerals of the soil, are transformed into new burnable material, the combustible *hydrocarbon CHH.* Indeed, the minerals of the soil (weathered and ground rock) and water are the most concentrated egg substance which, with the influence of the electric sunlight, transforms into sugar and bread, milk and flesh, guaranteeing life, health and vitality. For this reason they should be treasured more than the world's great wealth.

It will interest the reader to know some of the comments about Julius Hensel as a physiological chemist and physician:

Otto Borggold, Leipzig, Germany: As an experienced pharmacist, equipped with rich chemical, physical and physiological knowledge and without being blinded by official opinions, Julius Hensel started the study of medicine in Geneva and Zurich (Switzerland) primarily driven by the irresistible urge to find the truth. It is therefore not surprising that he succeeded in penetrating to a clear perception of the functions of living organism and the knowledge of the most intimate processes of life.

Hensel's chemical figures contain the key to the knowledge of those magic formulas, after which the Divine Architect created the jewels, let the plants sprout from the soil and formed the human body as the carrier of mental and spiritual light. Thanks to his revolutionary observations and physiological

deductions, we suddenly understand how a large number of substances can be recognized as plain condensation products of sugar. An even larger number of substances are presented in surprising simplicity as simple fragments of sugar or condensed sugar. And continuing with the endless alterations of the hydrocarbons and the acceptance of a sevenfold grouping of the sugar substance into starch (amylum), it is clear how stearine fat, in union with ammonia and phosphoric acid, transforms into nerve fat (lecithin), which by its constant combustion permits the existence of animal life.

If Hensel had given the world nothing but his genial figurative construction of the sugar molecule, from which the whole of organic chemistry can be deducted, he would by that alone be entitled to say: *"Exegi monumentum aere perennius."*

The teaching prevailed that the nitrogen needed by plants to form nitrogenous protein could not be taken from the air, which consists of about four-fifths nitrogen, but must be absorbed from the soil. This was the conclusion reached by Boussingault when he grew plants under a glass bell in annealed and leached pumice powder. He used a system of pipes for the admission of water, carbon dioxide and nutritive plant salts and let the atmospheric air pass over sulfuric acid in the opinion that this would keep it free from any possible ammoniacal content before it entered the glass bell. Then Boussingault chemically analyzed the obtained plants with the result that the little plants contained exactly the same amount of nitrogen as the little amount contained in their seed protein. It was upon this result that he based his conclusion. Then came *Hensel* who proved in his book *"Brot aus Steinen"* (Bread from Stones) and other writings that the original 16 grams of cellulose produced from carbon dioxide and water liberated so much oxygen that the space of the glass bell was filled with it. So all the nitrogen must have been expelled and therefore it could not take part in the plant growth. Boussingault and all of his followers overlooked this fact. Since this experiment (being the keystone of the nitrogen fertilizer theory) is a definite error, we are facing a new epoch in agricultural science, about which Hensel's book *Bread from Stones* gives valuable practical information. We must return to the original connection between mineral fertilizer (ground rock) of the soil and the wholesomeness of the resultant plant food. Numerous diseases of men and domestic animals can be explained by the use of unsuitable nitrogen-overladen nutriment and fodder.

Dr. Ullersberger, Strasbourg, France: The only source of the practical biochemical knowledge in my paper *Chemistry is Much Needed* is the numerous writings by the physiological chemist Julius Hensel. I considered it necessary that from the circle of practicing physicians a representative should appear to distribute Hensel's teachings. This man was inspired by God.

Prof. Neumann in *Norddeutsche Allgemeine Zeitung:* Hensel is today the first pioneer in the field of natural science.

Dr. Simmen, St. Imier, Switzerland: In Hensel I shall live and die; he has shown us the image at Sais without a veil.

Dr. E. Kapp, author of *Philosophie der Technik:* Hensel's book *Das Leben* is the fifth gospel.

Engineer Kessler, Wiesbaden, Germany: Hensel's book *Das Leben* marks an epoch in natural science.

Dr. Berthelen in *Über Land und Meer:* On the strength of Hensel's book *Das Leben* the social problem can be solved.

A County official in the United States: I gave your book to a clergyman, who commented that by reading the book he came under the impression that you had watched God during the creation of the world and related the process in beautiful language.

J. W. Teichel, Leipzig, Germany: Julius Hensel was one of the chosen few to be capable in our age of seeing a hundred years ahead. Aiming to publish the innermost development processes of nature, his extensive biochemical knowledge enabled him to do this in a most ingenious manner. He avoided the one-

sided judgment of Darwin, Haeckel, Boussingault, Berthelot, Pasteur, Virchow and others. It did not satisfy him merely to study nature and the truth, but he had the courage to state the truth. During my many years of correspondence with Hensel he never tired in his work and was always ready for those who sought advice or assistance from him. Posterity will do full justice to Julius Hensel and be able to judge what eminent wisdom formed the basis of his epoch-marking research.

* * *

My grandfather Dr. Zeno Schindler was a surgeon and physician in Schwyz, Switzerland, and his oldest brother Anthony was a physician in Arth near Schwyz, which may explain my inherent interest in the study of the chemical processes of life. From 1907 to 1910 I worked in London, England, and from 1914 to 1924 I worked in the Export Department of the Willys-Overland Automobile Co. in Toledo, Ohio, where I became a naturalized citizen of the United States. Because of the serious illness of my wife we returned to our native land.

The English-speaking peoples entered World War I and World War II so that European nations could regain their freedom, without asking any compensation. Further, the American Government proved its greatness of character by the Dawes and Marshall Plans for financial and economic help, permitting the European nations to make a rapid recovery.

I still have close relatives in the United States, so you will understand that the welfare, vitality and prosperity of the great and free English-speaking peoples is still alive in my aging heart. So please accept my English translation of Hensel's works on the chemistry of life as my grateful and humble contribution to the unique humanitarian work done by these peoples to save and liberate the Old World from despotism and tyranny.

"Seerose" Hergiswil NW, Switzerland

January 1967

Charles A. Schindler, Publisher

INTRODUCTION

Physical Fundamentals

To solve the riddle of "life" has at all times occupied and puzzled the minds of thinking men everywhere, but without success until the pharmacist's son Julius Robert Mayer of Heilbronn, Germany (1814–1878), discovered the *identity* of all natural forces. Only then could one determine clearly and show with logical sequence the very essence of vitality. Mayer actually developed the evidence of the unity and the indestructibility of that force, while exposing clearly its equivalence by number and measure of time.

We know now that all the apparently different forces of nature not only are in correspondence and harmony with each other, but are practically identical, inasmuch as vibration is the primary *source* and out of it develops heat as well as light, electricity and magnetism. As a matter of fact, there *exists but one force in nature,* erroneously up to now interpreted as the outcome of different essential realities, just according to the various aspects of its manifestation.

Using as a basis this solid foundation given us by Mayer, we cannot fail to establish the truth that our vitality also is identified with the unitary power of nature, despite the assertion set forth by some, that the phenomena of life cannot be placed within the framework of physical and chemical laws. The latter conclusion probably springs from the fact that one has always understood, from the definition of life, something specifically spiritual as distinguished from the physical as an independent principle and basis. This spiritual principle was called "anima," its decisive and essential feature was considered to be the self-motion "egomovability" quite apparent to everyone so that neither life nor "anima" was attributed to minerals, stones, etc., since no movement in them was visible. Only animals and plants were considered as living.

But if there existed some illusion, like the one according to which the sun turns around the earth, or similar to the illusion that when our boat is nearing a bridge the bridge seems to be moving towards us, how, then, if a larger measure of life is to be ascribed to minerals (stones)? How, if in minerals the spiritual, the gaslike principle existed in the most potential, the most *concentrated form:* if the apparent immobility were simply the tranquility of a stronger spirit? If the stones, they also, were animated? And may this be said here and now — *they are animated* — since without stones and water organic life can neither originate nor exist. The divine creative power is present and ever-active in the remotest corner of the universe.

The germ of knowledge of what life really means was first revealed by the Englishman Priestley and the Frenchman Lavoisier in 1774. Both of these chemists discovered that animal life, in a chemical sense, is a burning process by which we understand the union of two opposite substances along with the appearance of warmth. Certain substances of our body unite with the air we breathe in the same way that the fatty substance of an ordinary candle which, while alight, chemically changes into water vapor and carbon dioxide, or a piece of wood which during combustion produces heat, water vapor, carbon dioxide and wood ashes.

Our life process is similar to the glowing of a flame, also with regard to the fact that, indeed, the light of our life is of a certain duration just like any other combustible material whose duration depends upon the sum total of the combustible substance and the orderly normal renewal of the consumed substance (i. e., a larger supply of combustible matter fluctuates within largely drawn extremes.) However, there is an additional factor, the phenomenon of a real bodily resurrection, inasmuch as the burnt material through the power of the sunlight is again transformable into combustible substance, which can again be added to the mass of our body, so that in reality

in the course of 70 years we completely burn our body perhaps ten times and build it up again.

The real combustible material forming the substance of all fuel had already been discovered eight years before the discovery of breathing air. It was in 1766 that Cavendish of England, when pouring water and sulfuric acid over zinc splinters, saw arising out of the water a fine light, a kind of air that proved combustible. This combustible air was called by him "hydrogen," since he had succeeded in extracting it from the water. This designation, however, is not a proper one and should rather be oily gas instead of hydrogen since oily substances contain, proportionate to their weight, much more of that fine air in a condensed form than water does.

One should give to that fine kind of gas the name "etherogen" since our breathing process can be defined as a chemical union of the two opposite kinds of gas, etherogen and breathing substance. That breathing substance, when it was discovered, was called *oxygen* since, when united with burning coal, it created a sour-tasting kind of air termed carbon dioxide, and when united with sulfur, the sour-tasting sulfuric acid resulted. The original designation of the breathing substance has even been retained after the discovery that along with metals it furnished the very contrary of sour-tasting compounds.

We shall find, in pursuing our examination, that within the hydrogen gas contained in water and in oil there are all aspects of motion and life, even those of the stars, because this finest ether-like gas fills the entire immense space of the universe. It is a real triumph for the human mind received from God that the Greek philosophers already considered the ether filling the universe as the primeval source of all life and all motion. The Orphic hymns sing of it and Ovid also, in his Metamorphoses, describes the light hydrogen of universal space by the name "ether" so exactly that it is as though he had held it in his hands. And so many centuries later — not until 1766 — was it discovered by Cavendish.

A substance such as hydrogen, which is *without any specific gravity* when compared to others, is capable of raising and carrying along with itself, within another heavier kind of air, bodies attached to it, thus setting these into motion. This was proved by the Paris Professor Charles who filled a paper balloon with hydrogen and had the pleasure of seeing it fly toward heaven, since hydrogen, even under the pressure of the atmosphere at the height of several miles, is still 14 times lighter than the air we breathe. Outside in open space, this ethereal gas naturally is far lighter and, because of being freed from all pressure, its inborn tendency to expand can develop without restraint. Our astronomers should pay sufficient attention to this important feature.

The Greek philosophers, it is true, knew nothing of the fact that the fine space ether substance, chemically bound to breathing air, produces water; but they arrived at the existence of this ethereal gas by logical thinking, and, as said above, made the deduction that all life and all motion derived from the inborn elasticity and mobility of this kind of gas. Consequently, it is unfair when some scientists assert that the philosophy of the ancients was insufficient to recognize the union of things because of the lack of experiments. Yet we, knowing about the experiment with hydrogen for 150 years, have remained behind the ancients up to now. They had recognized ether as a logical pre-supposition and condition without having it in hand, while we have held in our hand hydrogen without understanding its mission as the elastic space ether.

From all this one can deduce that with the *mind*, with the intelligence, men saw things much earlier than we today with our physical eyes, and that one may tackle any scientific problem without the latter perhaps, but never without the former. In any event, there should never be a quarrel about the fact that one can reach the same aims by very different ways, and shortsightedness in this respect can only retard our knowledge.

Robert Mayer, while on the island of Java, observed that under the influence of the climate venous blood, which was

caught in a receptacle during a bloodletting, showed the same red color as arterial blood. Although many other German and Dutch physicians had already observed this phenomenon, not one of them had found it useful to investigate its *real* cause. And least of all, did it come to their minds to deduct from this fact the law relative to the conversion of natural forces, as it was reserved for Mayer to do it. His conclusions regarding this exceptional phenomenon were the following:

1) *Arterial blood,* of cherry-red appearance coming from the lungs, is different than the dark blue *venous blood returning* from the nerve endings in the skin to the lungs, in proportion to the amounts of *oxygen* and *carbon dioxide* dissolved in the blood. The normal arterial blood has *plenty* of *oxygen* and *little* carbon dioxide; the venous blood, in exchange, plenty of carbon dioxide and little oxygen. The difference is due to the fact that the arterial oxygen was used to change the combustible hydrocarbons CHH of our organism into carbon dioxide COO and water HHO.

2) The production of carbon dioxide and water as combustion substances cannot take place without the appearance of warmth. This means that the warmth of our body, all our vital functions, find a natural explanation under the supposition that combustible material in our organism is constantly subjected to consumption by its chemical union with oxygen.

3) When our organism receives warmth in *another* way and in sufficient amount as, for instance, in a hot climate where the body is warmed by radiation from the outside, the necessity disappears of making use of our own bodily material for the production of warmth. From this it follows that when little or no material is burnt, *no carbon dioxide* is produced, or it cannot be produced, so that, under such conditions, venous blood is very like arterial blood.

4) If, on the other hand, the blood by circulating through the arteries and veins undergoes no change and very little effort takes place, the circulation, as a result, becomes slower and slower, since the driving force for circulation proceeds from the chemical oxidation processes, which take place in the interior of the body.

5) Out of such retarded blood motion in certain regions of the body, there must gradually develop a complete standstill, with the natural result that instead of warmth, as the outcome of the motion of blood, a feeling of cold becomes ever stronger, as in the case of chlorosis or anemia. According to this, cold fever and shivers with a chill must be considered as expressions of the stagnation of the blood and, generally speaking, all climatic ailments must be explained from this point of view.

Robert Mayer, a ship's doctor, built up his observations into a system which proved the unity of all natural forces by fixing the value of force with a number. For our purposes, it is quite sufficient always to bear in mind that *warmth* and *motion* are of equal value, that the one changes into the other, that the one limits the other, but that the one, also, excludes the other.

This last feature, especially, i. e., that for a given effort of force only a given measure of warmth *or* motion takes place, that not both of them can show simultaneously their full power, is an absolutely indispensable principle and recognition of the full comprehension of the functions of life. Without this inviolable law of the equivalence of electricity, heat and motion, we would never understand the conditions that must meet and harmonize with each other in order to create out of apparently lifeless stony material, through its gradual shifting of the atom groups, living creatures with feelings without the necessity of other similar creatures taking part in it.

Under what conditions this could happen has been an unsolved problem for a very long period. That it did happen is beyond any doubt, since the earth once was but a glowing hot mass surrounded only by vapors and floating through the ether space. Therefore, only after a certain cooling down the possibility existed of bringing forth germs of plants and animals.

The greatest, and main obstacles fac-

ing us up to now and preventing us from understanding the creation of living beings out of material apparently formless and lifeless to our perception, were, apparently, two things: first, the variable shape along with the mobility, and, secondly, consciousness or the principle of the soul. It is very hard for us to put on the same level and compare stone like porphyry, granite, gneiss, serpentine rock with living beings. And yet our eyes must see how, out of such rocks, fir trees, pines, beeches and birch forests grow; and how, out of barks and roots, leaves, flowers and fruits, of forest trees all kind of bugs and butterflies, ants and spiders emerge.

The transformation of a motionless rock into a sorrel plant, into rhubarb, and of rhubarb root substance into a herb maggot *(Ptinus fur)* appears, at first thought, like an incomprehensible miracle. Hardly can a column-formed stone crystal claim to resemble a maggot by its own long-stretched body of cylinder form as long as it remains immovable? But now a maggot bends to and fro and changes its location, not to mention that it grows and needs nourishment. And beyond this, it shows sensibility since it cringes and pretends to be dead if you touch it, whence one has to conclude, surely, that it possesses the consciousness of a danger threatening it and, furthermore, that it does not exist alone, but that beyond it other things are living. It has, then sense organs; in fact, the senses of insects are extraordinarily keen. For instance, a *fly* knows exactly where it wants to go. Frightened away three times, a fly once sat on the nose of a king of Great Britain, and bothered him to such an extent that he spoke to it "as if one spirit spoke to another spirit." "I have three kingdoms," he exclaimed, "Can't you find any other place for yourself than my nose?"

This aim-consciousness which cannot be denied even in the smallest worm must be looked at by us from two sides: a) from the aspect of the physical conditions essential for allowing consciousness to become active, and b) from the aspect of natural philosophy, which compels us, despite all biochemical knowledge, to trace back the will and thinking process to an *original source,* which, although *immaterial* (not consisting of matter), like the light ray, yet, just like the light ray it cannot manifest its efficacy unless attached to physical things and would therefore appear powerless and unreal. With this, I wish to say: The more we penetrate into the knowledge and perception of the comprehension of life, the more childlike and humble our mind becomes, since we recognize ever more clearly that without the highest primeval power, an influence felt everywhere, one thing still remains unexplained, namely, our joy of *existing,* of *being,* of *acting,* which on my part I am inclined to consider as a direct divine dowry.

All the rest, and especially in what sequence the transformation of rocks and water (in the sunlight) into independent living beings took place, furthermore, in what way the bodily substances became active in order to make consciousness possible — all this can be explained. But my aim is not only to further our knowledge regarding the coherence of living matter, and to interpret it, but, and this is far more important, to make such knowledge and perception the starting point from which new paths can be pursued for securing the happiness and welfare of mankind. At the root of so many measures lies the error, but also, alas, partly our naked self-interest. If, therefore, a single error can be the cause of damage and mischief to millions of people, it follows, clearly, that the one who discovers the error has the great duty, with utmost determination, to point his finger at such an error. The problem is not only to avoid all that brings damages, but also to expand whatever is useful, always with the aim in view of feeding those who are hungry, of warming those suffering from the cold, of making patients healthy and merry again those who are downcast and disheartened.

No, there is absolutely no need of complicated apparatus in order to grasp at the root, the very elements of life, but one thing, truly, is indispensable: *chemical studies*. With this I do not wish

to assert that everyone should study chemical science, but that our agricultural schools, high schools, colleges and universities should teach chemistry. But before all others, *all our physicians* need a better comprehension of the chemical processes of life and of nutrition, which is the only guarantee and security for preventing the progressive degeneration of man.

In photography, we make use of a substance called silver chloride consisting of a chemical union of chlorine and silver. In this chemical union, the chlorine is called the electronegative, the silver the electropositive part. Similar to silver and chlorine, our earth comprises over 70 elements (Ed: Hensel's time), all of which are also classified as electropositive or electronegative, according to their different behavior. All substances uniting with electronegative oxygen O are looked upon as being electropositive, as for instance iron which, along with oxygen, supplies iron rust; but first and foremost, the *hydrogen gas HH,* which, along with oxygen, condenses into water HHO.

However, all those basic substances are considered electronegative which, in the same way as oxygen, unite with hydrogen gas and metals, and to this category belong chlorine, sulfur and phosphorus. Such a dividing up, of course, has its drawbacks, but it facilitates, all the same, a general survey.

The incomplete character of this division appears when one considers that sulfur, chlorine, phosphorus and nitrogen can unite with oxygen just as well as with hydrogen. The same holds true for silicon and carbon. All the same, this division facilitates comprehension according to the law of uniting what is fundamentally opposite to each other.

In the case of the growth of the bodies of plants and animals, we do not meet all of these 70 substances, but only a small number of them, of light atomic weight. Only calcium (atomic weight 20), potassium (39), sodium (23), magnesium (12), manganese (27.5), iron (28), fluorine (38), sulfur (32), chlorine (71), silicon (28), and phosphorus (31) serve, in connection with water, carbon dioxide and nitrogen, to produce bodies of plants and animals. Since calcium, potash, soda, magnesia, manganese and iron, united with silica, are contained in the various kinds of feldspar just as well as in primeval rocks (granite, gneiss, porphyry), whereas sulfur is contained in gypsum, and fluorine in the form of calcium fluosilicate — a vastly distributed rock — and nonetheless, also chlorine united with sodium in common salt; as well as carbon dioxide and phosphoric acid united with calcium earth, found in numerous regions on the surface of the earth, these kinds of rock supply all that is necessary for the growth of plants, as soon as rain, air and sunshine exert their influence upon them.

Here we must mention that all the minerals enumerated are found in all plants, but that the form of the plants is different in proportion to the varied mixing proportions of the minerals in the ash constituents of the plants. From the different constituency of the blood serum of different people one can explain the difference in the digestive juices (gastric juice, bile and pancreatic juice) so that, in accordance to their peculiarity, they again create a peculiar chyle from the absorbed food which naturally produces blood similar to the blood of the previous constituency, which again brings about a definite bodily and spiritual make-up. How good this is! What would become of the world if all people had the same taste, the same inclinations, the same spiritual capacities, and the same longing after a definite aim?

Not any garden or fieldfruit can grow on any soil. But if we put at its disposal such ground rock as the normal ash constituents of certain plant needs, the plant may grow and thrive on a spot where formerly this was not possible. This is on condition, of course, that warmth, light, humidity and porosity of the soil and protection against wind correspond with the peculiar requirements of the plant. We must get used to recognizing plants as transformed stones in the sense that in the plant there are not present the intact stone and the natural rain water along with carbon dioxide, but that the plant is diminished of a

part of the electronegative oxygen as an equivalent of the electric influence of the sun rays.

The possibility of decomposing feldspar by rain, air and sunshine can be explained by the fact that *silicic acid,* which unites certain earths (calcium, magnesia, potash, soda, iron and manganese) together with clay, with feldspar, brings about chemical compositions of varied proportions. Silicic acid can even exist by itself, thus setting at liberty all the basic constituent parts of the feldspar. The rock silicates, if we add to them the silicon dioxide (quartz), form about a third of the total of the earth. Silicic acid can be dissolved in hot water far easier than in cold, and this explains the luxurious growth of plants containing silicic acid, such as bamboo and reed-type plants in the equatorial regions during primeval time when the sea water still was highly saturated with silicic acid.

When we think of the solutions of potassium silicate of which under the name "waterglass" extensive use for technical purposes is made, we can well conceive that it was a solution of soda-potash-calcium fluorsilicate which covered in primeval time the rock crusts of the earth. After a short time the solution of potash-calcium-soda silicate, which also contained hydrogen chloride-bromide and iodide of calcium, potash, soda and clay, acted on enormous quantities of ammonium carbonate. The ammonium carbonate originated when the cyanogen-containing primeval atmosphere sank into the sea water. From that time originated the enormous sediments on the sea bottom which we designate as slate of mica, clay, alum, carbon, copper, sandstone, Jura chalk, chalk and coal formation, the original stratas of which, as a result of elevations in the earth crust, have undergone manifold dislocations.

As long as these sediments were still in a state of solution in the sea water, the latter was undergoing peculiar electric tension conditions which then created forms of plants and animals, which, in many respects, were different from those appearing later on, according to the remainders found. This must be understood in the sense that the complete or partial lack of a certain kind of earth involves different resultants of the co-operating forces.

Along with the chemical unions and separations of earth, water and air, the ordinary physical laws, to which the growth of crystals submits, also played a role. I should like to draw attention to the well-known fact that the solutions of ammonium salts as well as of benzoate salts, after having evaporated their water content, imitate the shapes of stalks and leaves and water beyond the edge of the vessel. If, in addition to these two appearances, we also consider the crystallization of the frost-ferns on window panes and consider benzoic acid as a sugar product, and, since ammonia is contained in the albumin of plants, we have in sugar, ammonia and water the form-giving elements of the growth of plants, all united. And since, beyond the ammonia, also calcium, magnesia, potash, soda and other bases take part in that formation, we understand that the manifold forms of plants are merely subjected to the simple law of the paralellogram of forces.

From all this we can see why it is necessary that not the whole amount of rain water evaporates because of constant sunshine, since the young plants would perish if they could not constantly absorb humidity by means of their roots. This is taken care of by the *clay* which retains, efficiently and constantly, the water in the soil. And since clay is contained in chemical union with silica, as well as potash, soda, calcium, magnesia, iron manganese, calcium chloride and calcium fluoride in the ordinary feldspar, the conditions which must exist in fertile rocks are the following:

1) Finely ground feldspar, granite, gneiss or porphyry

2) Calcium carbonate

3) Some gypsum and some phosphate rock

4) Porosity of the soil for the admittance of nitrogen and oxygen from the atmosphere

5) Rain and sunshine

Fine grinding of the rock is of great worth to abundant fertility as it is evident that the electrochemical conditions of

tension become all the more loose and the material all the easier shiftable the more numerous the elementary substances are held together in the smallest possible space.

An instructive example is furnished by the easily-flowing Wood's metal, containing bismuth, lead, cadmium and tin which melts at 60.5° C., i. e., considerably below the boiling point of water, whereas bismuth metal melts at 271° C., lead at 327° C., tin at 232° C., and cadmium at 321° C., Such is the importance of the difference as to whether we are dealing with a simple substance, or a mixture.

It is now apparent that when certain occurrences in a melting process analogous to that of Wood's metal have brought about a perfectly similar mixture of minerals, the fertility arising therefrom is the greatest imaginable. An astonishing proof of this is shown by the creative power of the flowing lava after every volcanic eruption, since it contains all the basic feldspar parts in a homogeneous mixture.

That tremendous eruption, to which the depressed region of the Caspian Sea owes its origin, when the Caucasus, the Elburz Mountains and the Himalayas turned the viscera of the earth towards the outside, is of great value in the primeval creation processes. The potash-containing porphyry rocks of Mt. Ararat (melted feldspar) and its trachyte rocks (lava loosened by water vapor) confirm the tradition handed down of the creation of the potash-holding grapevine on rocks containing so much potash and calcium. The event took place, without doubt, in the following way:

The considerable height to which the glass flux of the molten earth crust rose — up to two or three miles above sea level — surely displaced in a large circle the heated atmosphere. And then, hardly had the glowing flux begun to stiffen than the air layers, held high above until then, precipitated into the empty space with thunder. The electricity of the atmosphere discharged itself in thunderbolts of such unusual power that the vapors of the total earth circumference were drawn into the gigantic air crater bringing on a cloudburst, which legend has described as the Great Flood. Under the effects of that cloudburst, the hot lava glass flux burst asunder into dust and powder. And out of such dust and powder, in connection with the rain and the sun, a *paradise* arose.

That the vineyards in the localities at the foot of Mt. Vesuvius throve then just as today can be believed without any doubt, since, wherever such a homogeneous mixture of rocks is provided with sunshine and humidity, there can be no lack of a luxurious growth of plants. The original creation of the *Caucasian human race* with its symmetrical body form was possible only on the condition that an enormous mass of rocks remained hot enough for a sufficiently long time. This was in order to furnish a large quantity of water (to the Black Sea) with a uniform brooding warmth as it is indispensable for the growth of rather large beings. In this respect, the sojourn of the beings in lukewarm amniotic water rich in albumin, probably lasted a little longer than forty weeks. And the comparatively independent beings surely found, when carried to land by the western winds, a temperature of the atmosphere and also products of the soil which kept them from all want of food and clothing.

I have said that the crushing of rocks to dust and mud was a main condition for an exuberant fertility. This fact cannot be emphasized too much. Egypt owes its fertility to the fine dust of the Nile mud, which is washed down each year from the mountains. And how could the masses of China be fed if their enormous rivers, the HwangHo and Yangtze, did not cover their rice fields every spring with the washed-down dust and mud from the rocky mountains of Tibet? The sugar-containing grapevine thrives in the calcium carbonate soil of Champagne in France. The oil-supplying fennel bush, anise and caraway also need a soil rich in calcium, which at the same time should contain feldspar, so these are often found in vineyards.

In Barletta, Italy, on the Adriatic Sea, according to the report of a friend, where they plant at the end of October for the

third time, where they continuously sow and reap without letting the soil rest, where the grapes grow to a size never seen elsewhere, where, pomegranates, peaches, pears apples and figs, caused the Greek seafarers as early as 2000 years ago to describe upon returning home "the wonders of the Hesperian gardens," the soil could not bring forth such miracles if the Ofanto River, nourished by numberless tributaries, were not fructifying the seacoast with its inexhaustible calcium carbonate and weathered feldspar from the Neapolitan Appenines.

By means of the incomparable fertility of the feldspar-containing alluvial soil, the calcium carbonate exhausted by vegetation is replaced by every rain coming down from the towering chains of mountains in every Jurassic country. This should teach us how rich and fertile the soil becomes when one applies ground limestone mixed with ground feldspar.

When the electric lightning of the sunshine penetrates the moist soil, as an equivalent of its action, a re-grouping of materials and production of sugar take place. So we must remember that the newborn sugar with its unaltered carbon dioxide is literally forged to the potash or calcium or magnesia of the feldspar, which, all of them in their turn, are united to silica. In short, the sugar and the rock form a closely connected body, in which the sugar acts as a bridge over which the carbon dioxide and water convert themselves into ethereal oil substance, while gradually the bridge itself — just as it happens in fairy tales — also goes across and transforms itself into oil, while also being submitted to various other chemical changes as long as the warm sun — the actual sorcerer — shines.

We can convince ourselves that the crystallizing sugar substance, wherever organic life exists, is the actual *foundation,* and when studying it thoroughly, we become aware that it represents nothing else than a union of oil-creating material with carbon dioxide and water when the opposition of identical substance and the interposition with dissimilar substance will produce a physical tetanus contraction. And with this understanding disappears the imaginary wall which up to now has divided natural bodies into three different classes, namely, stones, plants and animals, by virtue of that mistaken principle that the crystal form and organic life are incompatible things.

The sugar crystal itself proves that it is *not* a lifeless substance; on the contrary, living forces are contained in it, which are capable of manifesting themselves in various directions. This is to say that the living power in the sugar is apparently dead, but it is only slumbering and just needs to be awakened.

Bread from Stones

Our Physical Substance. Scripture says that man is created from earth and must return to earth. But man consists of water and air as well as earth. Physiology teaches us that the human body is made up of four elements: carbon C, oxygen O, hydrogen H and nitrogen N. In plain chemical language this means that our body consists of carbon dioxide COO and ammonia NHHH, in which at the same time the elements of water HHO and oil CHH are contained, all of which are capable of evaporation and *combustion*. Our blood protein also is composed of these four elements, out of which all our physical parts are formed, similar to the chicken being formed out of the hen's egg. Due to the protein-preserving power of the *non-combustible* earths, our body is glued together as firmly as if with cement.

After cremation there remains from an adult body on the average not more than six pounds of *ashes*. All else is combustible substance which returns to the air ocean in the form of gases: carbon dioxide, water vapor and nitrogen. The remaining ashes consist not only of the bone calcium, but also of the salty and earthy parts peculiar to the muscle flesh, the sinews, the blood sap and the nerve substance. Healthy muscle flesh contains potassium phosphate; the bones, instead, mainly calcium phosphate as well as magnesium phosphate and calcium fluoride; the nerves, ammonium phosphate; however, the elastic gelatine substance of the cartilage and sinews contains ammonium sulfate. And the healthy blood out of which the child in the mother's womb forms *all* its organs contains carbonate, silicate, fluoride, chloride, iodide, bromide, sulfate and phosphate of potassium oxide, sodium oxide, calcium oxide, magnesium oxide, iron oxide and manganese oxide. All these earths, these essential carriers of our life energy are found in our ashes. And exactly these same earths are found in *burnt plants* and also in the *primeval rocks* since all plants are but converted stones which have come to life.

SUGAR SUBSTANCE

The Key to Understanding All the Processes of Life

Sugar forms the foundation of all organic life, so the knowledge of the arrangement of the atom groups in the sugar molecule is the *key* to the understanding of each and every process of life in the plant and animal kingdoms. Chemically-pure, crystallized grape sugar has a rhombus shape with its atoms grouped in six rays similar to the snow crystal. This rhombus shape proves that sugar is not a lifeless substance. On the contrary, it contains living force capable of manifesting itself in many directions. The vital power in sugar is only seemingly dead, it just needs to be awakened.

Closer study of sugar reveals that it is only a union of oil-forming material with carbon dioxide and water united in such a manner that the grouping of like bodies and the union of unlike bodies create a physical contraction which brings about a *crystal form* of the material. In such a manner the imaginary curtain disappears which so far has divided creation into three different categories, namely, stones, plants and animals, due to the false theory that the crystal form and organic life are incompatible.

The components of grape sugar, 6 atoms carbon, 12 atoms hydrogen, and 6 atoms oxygen, are built up by one atom against the other. Since only *opposites* chemically unite with one another it is obvious that the 24 atoms grape sugar must contain *opposite* groups in which positive and negative substances alternate so that each in turn maintains its own place. As grape sugar at fermentation decomposes into carbon dioxide and al-

cohol, both these components must therefore be interlaced in such a way that the oxygen of the carbon dioxide keeps the hydrogen of the alcohol in a firmly fixed position.

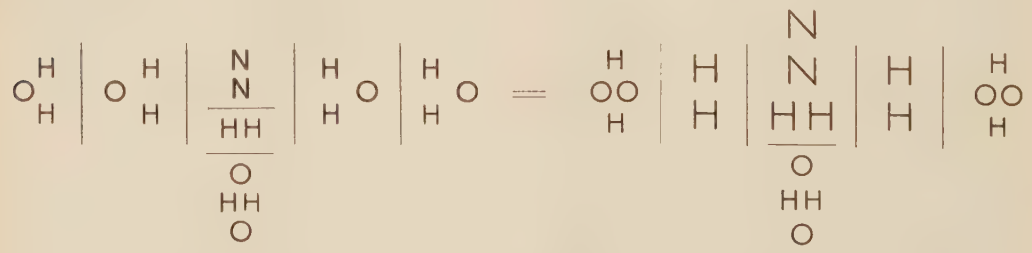
We must take into account that grape sugar can split into two parts lactic acid instead of into alcohol and carbon dioxide. Consequently, the atoms must be arranged in such a way that the halving of the groups gives 2 molecules lactic

1 carbon dioxide COO and
4 water HHO change into:

1 *hydrocarbon CHH* and
3 hydrogen peroxide HHOO

acid of which the negative and positive elements touch each other so that the head of one lactic acid lies along the tail of the other. We must also consider that the force of the *cohesive* action of carbon makes it cluster together. Soot, coal, and diamonds are examples of this. Therefore, all carbon substance in a sugar molecule is grouped together in the center. In contrast, hydrogen shows an *expansive* characteristic; it cannot stand in the center so it claims a centrifugal place. Carbon *centripetal,* hydrogen *centrifugal,* but most centrifugal of all is the passive, electronegative oxygen.

Grape sugar, in which is found a group of partly combustible hydrogen with *not* yet burnable water and carbon dioxide,



2 nitrogen N and
6 water HHO change into:

2 *ammonia NHHH* and
3 hydrogen peroxide HHOO

represents a pre-step toward oil substance (fat) which consists of nothing but burnable hydrocarbon CHH, whereas sugar still contains the combustion products water HHO and carbon dioxide COO next to burnable oil-forming ethylene gas (alcohol). It all depends in what succession of row or group that the elements hydrogen H, oxygen O, nitrogen N, and carbon C are brought together. (See grape sugar group.)

How Stones come to Life. Early in the morning when the life-giving sun shines on the soil, the electric sun rays divide the burnt substances water HHO and carbon dioxide COO and bring forth living *burnable material,* namely, the combustible *hydrocarbon CHH.* This is the divine miraculous cycle of life. One part calcium or potassium carbonate and 4 parts water produce 1 hydrocarbon CHH and 3 hydrogen peroxide HHOO which separate into water and oxygen.

When atmospheric nitrogen N chemically combines with water, *ammonia NHHH,* the fundamental component of all plant *protein COO CHH NHHH* is formed. In other words, the electric sun rays regroup 2 nitrogen N with 6 water HHO into 2 ammonia NHHH and 4 hydrogen peroxide HHOO which separate into water and oxygen.

I wish to make it clear that the most active cementing agent in the growth of all plant material is always the burnable *hydrogen HH* contained in the sea water

in concentrated form. And since this hydrogen gas comes from heaven and is identical with heaven, we have every reason to always remember the miracle that heaven and God's creative power are within our immediate presence. Foolish are all those who seek heaven in the far distance and difficult to reach. Heaven and the divine creative power are around us and within us. How much more cause to be pious and devout for all of us who are respectfully aware of the holy presence of God.

In the air *no* plant growth can take place, solid *earth,* i. e., stony material is absolutely necessary. When rain water penetrates a rock fissure containing dissolved air nitrogen and carbon dioxide, then it fructifies the rock. All primeval rocks — granite, gneiss, porphory — contain in various proportions and groups the potash base *potassium,* the soda base *sodium, calcium* (chalk), *magnesium, iron, manganese,* combined with *silicic acid, sulfur* and *fluorine,* all together united with *aluminum phosphate* (clay). These primeval rocks together with basalt and lava present an inexhaustible storehouse of the *most natural plant food,* which we only have to grind and spread on our fields.

The carbon dioxide unites with the basic rock components, forming bicarbonates of calcium and magnesium earth which dissolve clearly in water. The new compounds assume manifold positions within the water drop and, so to speak, perform a counter dance as in a ballroom.

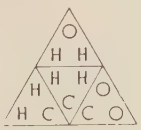
Thus Begins Life. By chemical union of the rock components with the nitrogen of the air, plant protein is produced. But it depends on the kind and quantity, plus the special symmetric grouping of the participating minerals, whether a birch tree, beech, oak, pine, maple, linden or heath shrub will rise towards the light under the electric influence of the sun rays. Our forest trees still today grow in the same way as in Adam and Eve's time, a fact that anyone can observe in the mountains if he wants to see. "God

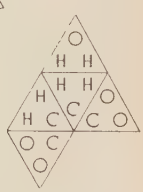
Grape sugar 2 (COO CHH CHH HHO) decomposes into the following groups:

Grape sugar $C_6 H_{12} O_6$

2 carbon dioxide COO . . . .

2 ethyl alcohol . . . . .

2 lactic acid . . . . . 

1 malic acid . . . . . 

propyl alcohol CHH CHH CHH HHO
butyl alcohol CHH CHH CHH CHH HHO
glycerin = lactic acid plus HH
succinic acid = malic acid plus HH
acetic acid = alcohol plus OO less HHO
propionic acid = propyl alcohol plus OO less HHO
butyric acid = butyl alcohol plus OO less HHO

sleeps in stone, breathes in plants, dreams in animals, and awakens in man" — Hindu saying.

The Winy Fermentation of Grape Sugar is a classic example of how all processes of organic growth lead back to *condensation and separation* of the chemical elements, whereby fragments of quite different chemical properties and reaction result. The manwrecking alcohol clearly show this. The grape sugar figure, being a perfect symmetrical group, can be cut into two halves horizontally or vertically and two *lactic acids* will result. Such a lactic acid pair as long as it is not isolated and forms a sugar union, tastes sweet and not sour.

The changing of the physical properties when a condensation or separation of the atom groups takes place is due to the disintegration of the accumulated chemical groups in their individual constituents whereby the cementing ribbon of electricity is liberated. So we must not be astonished to find sugar, dextrin gum, wood cellulose, starch, oil and protein (albumin) in the same fruit, e. g., grass, leaves, bread grain, nuts, seeds, etc., because their mother substance is grape sugar in various groupings (FIG. Page 19).

Each fermentation produces hydrogen and oxygen, because the liberating electricity electrolytically decomposes water. Since the components of water find material to oxidize and reduce, they form new compounds, namely, the hydrogen without separating anything. The oxygen, however, separates water or produces heat. Thus *glycerin* is formed by the addition of 2 hydrogen HH to lactic acid and *succinic* acid by the addition of 2 hydrogen to malic acid.

However, *acetic acid* CHH CHHOO is formed by the chemical union of 2 oxygen OO with alcohol CHH CHH HHO separating the water HHO and in a similar way *propionic acid* from propyl alcohol and *butyric acid* from butyl alcohol. The last three acids accompany the sugar fermentation, forming simultaneously the fragrant kinds of *ether,* originating from the union with ethyl, propyl, and butyl alcohol.

It is interesting to find that chemically pure sugar dissolved in distilled water and protected against air in a closed jar is *not* subject to winy fermentation. It ferments and decomposes only when mixed with other plant components, such as is the case in pressed grape juice. Under such conditions its components no longer are indifferent toward the active chemical power of its *minerals* which are present in the form of calcium phosphate, magnesia, ammonia, gypsum, calcium chloride, etc. Thanks to the minneral tensive power it will even ferment in air-tight glass jars by creating *mold* fungi or yeast cells, which now take the place of the plant form from which the juice and pulp originate, analogous to the flies from human excrement.

When yeast fungi are added to the ferment material at the beginning, the fermentation proceeds all the faster because the potassium phosphate of the yeast gives an impulse for the extraction of this potash salt from the ferment material for further growth.

From many facts we can deduct the biological law that the *phosphates* have a tendency to *accumulate,* something like personified motion or soul in action, aiming at centralization and concentration. Our bone substance created from calcium phosphate and also our nerve stearin fat consisting of ammonium phosphate lead us to the point, plus the following facts:

The ergot fungus *Claviceps purpurea,* the product of the regrouping of grain substance contains nearly 5 percent potassium phosphate besides some calcium, whereas our grains contain but $^{3}/_{4}$ percent of it The toadstool *Ammanita muscaria* contains nearly 6 percent potassium phosphate and similar quantities are found in the wood fungus *Merulium destructor,* but pine wood from which it is formed contains but $^{1}/_{10}$ percent or a sixtieth part. Just watch the ghost-like growth of the wood fungus to detect the magic power with which the phosphates in the moist wood twine like a ribbon amongst themselves by destroying the old form into dust. Sixty times as much phosphate as the basic material truly is significant and confirming.

All mushrooms, including the *Phallus*

impudicus, contain 5 to 8 percent phosphates. The Phallus impudicus originates from the urine of wild animals which only contains about 1 percent phosphate. One afternoon I found a 7-inch high specimen on a spot in the zoo of Neustrelitz, Germany, where I had been feeding the deers in the morning and where a deer had urinated. The mushroom *Boletus cervinus* which affects the sex functions of domestic animals behaves similarly to the morel and resembles in form the Phallus impudicus, all of which arise from the urine of game, analogous to champignons sprouting out of horse urine. From this my deduction is twofold:

1) The form-giving power of phosphine PHHH, placing it at the peak of all odor substances inasmuch as it not only *smells* but *glows* when being separated.

2) The enormous speed with which the phosphate-holding nerve mass and bone mass were created out of concentrated substance at the beginning of primeval time when electric forces started to function.

Since the magic growth of the phosphate-holding mushrooms can still be observed today it is evident that during primeval times when everything was *electrically vibrating,* the process did not occur at a slower pace.

The *sulfates,* on the other hand, must be considered as opposite yet related substances to the growth-furthering *phosphate* compounds. All protoplasm (protein) contains phosphorus and sulfur at the same time, yet in manifold varying proportions. Everything points to the fact that *sulfur* plays the role of *regulator* of all organic growth, corresponding to the check on the speed of a motor or engine as it cannot be left *un*restrained. So the clockwork of our body needs a cog factor to regulate its speed and give the unit a certain continuity. This function is alloted to sulfur, in particular to salts of sulfuric acid.

For this reason, normal blood contains *twice* as many sulfate as phosphate salts, thus preventing an unbridled growth of those nerve endings leading into the mucous membrane. All the famous mineral springs contain sulfur salts and thus balance the abundant phosphates in our daily food.

Sugar Substance masks itself because it loses all its usual physical properties which we recognize, simply because it combines with other sugar groups and at the same time with bases. The best example of this is *gum arabic* as it contains 7 molecules of sugar united with calcium, magnesia and potash. The bases can be dissolved by adding hydrochloric acid and when alcohol is added the 7 sugar are separated as a sediment in one group. This substance is then called *arabinose* which develops into normal sugar when it is boiled with diluted sulfuric acid whereby water is again chemically united with the sugar.

This property of sugar to polymerize with its equivalent can be seen in many sugar variations such as grape sugar, beet sugar, milk sugar, blood sugar. Its ability to unite with bases, by which its sweet taste is taken away, is repeated, e. g., in egg albumen which contains sugar substance in chemical union with calcium, magnesia, potash, soda and ammonia so that, incidentally, we can consider gum mucus, which is so similar to the albumen, as a *forestep* to albumen.

Closely related to gum mucus is the *alga mucus* consisting of a *union of starch* (consequently sugar) *with soda.* This union is of such an exact saturated proportion that neither the soda nor the starch can be recognized by the usual means, using litmus paper and iodine tincture. Only if we ignite the alga which has been dried and burn it, does the sodium appear in the form of soda. In the same way, calcium, potassium and magnesium carbonate remain after gum arabic has been burnt. Since starch represents a sixfold condensed sugar, the relationship between gum mucus and alga mucus becomes quite clear. *Alga mucus is 6 sugar plus soda;* gum, on the contrary, is 7 sugar plus potash, chalk and magnesia.

I should like to point out for the doubting chemists that I have prepared alga mucus artificially by shaking potato starch with an alcoholic solution of caustic soda. When I then washed the apparently unchanged starch powder

with alcohol until red litmus paper no longer turned blue, the resulting product — after pouring off the alcohol, put on paper and dried — appeared to be true alga mucus. When I shook a small pinch of the powder in cold water it immediately dissolved into a gelatine which had all the characteristics of a carrageen moss decoction. For non-experts I must point out here that carrageen moss consists almost *exclusively* of alga mucus. Superfluously, I burnt a part of the powder and the sodium appeared again in the form of soda, proving that it had truly chemically united with the potato starch.

As sugar substance unites with soda, potash, calcium and magnesia, so also is our blood albumin a union of sugar with iron oxide, but so unrecognizable that neither the sugar nor the iron can be proven by standard means. And the blood albumin must first be *burnt* to prove its iron content by chemical reaction.

Such chemical unions of the sugar with itself or with earthy material are to be considered from the same viewpoint as any other ordinary chemical product, e. g., Glauber's salt. Glauber's salt contains caustic soda and caustic sulfuric acid but these ingredients cannot be recognized by their normal chemical and physical properties.

Incidentally, sugar combinations in plants were long ago recognized by chemists in spite of their masking. Out of an inconceivable number of plants, substances have been separated which could not be recognized as sugar. Only after their lost water parts have been brought back to their original place by cooking them with diluted acids or alkalies, has the sugar substance reappeared. Such substances are called glucosides, because grape sugar is known as glucose. Up until now we have not been aware of the fact that that which remains aside from the sugar also is produced from dehydrated sugar.

An example is the substance coniferin contained in the rising sap of pine trees. This can be separated into sugar and so-called coniferil alcohol but the coniferil alcohol too is a dehydrated sugar molecule (dilactid), to which a pair of hydrocarbons is attached to each of its two carbon dioxides which broke off from a neighboring sugar molecule in such a manner that one of the hydrocarbon pairs tore off an oxygen from a third sugar molecule. The figures in the *Table of Figures* at the end of the book give an idea of such glucosides and glucoside fragments.

A sugar fragment strongly resembling coniferil alcohol is *clove acid*. Chemists have succeeded in creating vanilla substance (vanillin) out of these two substances by separation of one hydrocarbon pair. This merely indicates that vanilla also is only a sugar fragment. It cannot contain anything except what it sucks up out of the soil that nourishes it, i. e., out of bark sap. The vanilla plant is a parasitic growth that thrives on the storax tree, a tree resembling the maple tree; but whether it is a maple, birch or pine tree, the distinction is not very great as I shall explain further. There is fir sugar as well as maple and birch sugar. It is therefore justified to expect that vanilla substance can be produced, not only from fir sugar and clove oil acid (which consists of dehydrated sugar, quinone and 4 hydrocarbons) but also from many other sugar compounds. Since I wrote about this theory in 1884 it has found practical application.

The rising sap (cambial sap) of trees, especially, contains substances whose origin from sugar is easily proved. The horse chestnut *(Aesculus hyppocastanum)* supplies the substance aesculin which can be decomposed into sugar and aesculetin. Aesculetin, however, is nothing but a united group of substances all of which originate from sugar such as oxalic acid, formic acid and protocatechu acid. The latter consists of the sugar remainders quinone and formic acid.

Another substance is called *phloridzin*. It is produced by the lively activity of the roots of apple, pear, cherry and plum trees from the calcium carbonate of the soil and can be found in the root sap of all these trees. We further have the amygdalin of the almond and the fruit stones of apricots, peaches and cherries, the *quercetin* from oak and apple trees and which is also contained in China

tea, the *hesperidin* of oranges, the *arbutin* of bearberry leaves, the *glycyrrhizin* of the licorice root, the *curcumin* of curcuma root, the *brasilin* of the Brazil wood, the *haematoxylin* of pernambuco wood, the *alizarin* of the madder root, the *santalin* of the sandalwood, the *salicin* of the willow, the *populin* of the poplar, *rhamin, convovulin, jalappin, betulin, aloin, carthamin, atropine:* They all originate from sugar and, with the exception of amygdalin and atropine which also contain ammonia, can all be recognized as simple fragments of the

Hepta-Dilactid
7 (C_6 H_8 O_4)

substance depicted here. I call this substance *hepta-dilactid* since it is composed of 7 double molecules lactid, i. e., 7 molecules dehydrated grape sugar. I shall explain further how this substance originates and why its origin must be presumed in all such plants, which during any period of their vegetation contain *tannin,* since this is also produced from this group.

The general viewpoint explaining all these glucosides (including tannin) is that the effect of the sun forces a true *bursting* of the sugar groups which are chemically condensed with one another, in the same way that window shutters and table boards gradually burst if the cabinet maker has made them out of damp wood. The sun heat demands an equivalent for its influence. Such an equivalent is that the sugar compounds first separate water parts, then when no more water is available they must part with *other* constituents. The *nature* of the discarded fragments partly depends on the variety of rocks to which the sugar compounds are attached. Depending on whether they are attached to potash, magnesia, calcium, manganese or silica will the tensional power of the burst vary and the fragment be modified accordingly. For this reason we find *salicin* in the bark of the willow which is poor in mineral content, but no *quinine.*

There is no growth substance for plants other than sugar and minerals. All cellulose consists of rock with sugar substance in chemical union with one another, that is, neither the rock nor the sugar substance can be recognized with the eye or by chemicals. Only when we *burn the* oil substance of the sugar (oil-forming gas) do the mineral substances remain behind either in *pure* form or united with carbon dioxide in the form of *mineral carbonates.* For example, a maple leaf consists of sugar with calcium and magnesia. If I dry a maple leaf over the stove and then burn it with a candle flame the sugar will burn and create the well-known caramel scent and loose ash remains behind which actually consists of burnt magnesia (magnesia usta) and calcium carbonate.

Finally, we must consider the history of the *creation* of grape sugar, i. e., of the substance out of which it originated. Its origin is neither from benzol nor methane, nor aldehyde, nor hydroxyl, because none of these is found in the soil of beetfields or any place where beetroots are grown. It is much more likely that only *water and carbon dioxide* are the source.

Theoretic chemistry teaches that the various sugar groups do not consist of carbon dioxide, water and the burnable hydrocarbon, but that they are aldehydes CHO from methyl alcohol of the formula: CHH (OH). CH (OH). CH (OH). CH (OH). CH (OH). CHO. Yet the ability of the aldehyde group CHO to convert silver oxide into metallic silver is not peculiar to the aldehyde alone but is characteristic of other atom groups as well. Further, because of the aldehyde's peculiarity of reddening rosaniline salt solutions after being discolored by sul-

furous acid, which the sugar groups *fail* to do, the theory admits that they may be taken as ketone alcohols after the formula: CHH (OH). CH (OH). CH (OH). CH (OH). CO. CHH. OH. In other words, theoretic chemistry stands before the atom structure of the sugar group as before a riddle of the Sphinx because it accepts the "hydroxyl" HO as basis, which in reality does *not exist.* God creates sugar not from aldehydes CHO nor hydroxyls HO, but from carbon dioxide COO, water HHO, and stone.

Since sugar substance is the key, it is evident that for those who do not possess the key no progress in the advancement of our physical and moral welfare can be expected. Most physicians and professors of agriculture, still today, belong to this class of non-owners of the chemical key. To be sure the fault is not their own, rather, it is the indigestible and incomprehensible method of chemical teaching of that most important and fundamental subject of sugar.

The mobility of hydrogen gas as the exclusive basis of the growth of plants and animal bodies has been greatly misunderstood. In reality this means a setback for science as it by-passes blindly the simple and clear-as-daylight facts because someone once proceeded on the wrong path and it is now followed by all others as sheep follow the bell without thought or reflection.

The obstinate false teaching of the imaginary substances — carboxyl, hydroxyl, alkylene, oelfine etc., which do not exist in nature — implies an unforeseeable disaster inasmuch as our scientists, in whose knowledge the state and government put faith and reliance, are a direct hindrance to the advancement of prosperity, health and wisdom.

"When life stands in contradiction to science, then life is always right." — Justus von Liebig, German chemist.

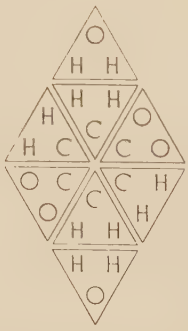
Let us assume that in the carbon dioxide molecule, which consists of 1 atom carbon and 2 atoms oxygen, the constituent atoms are grouped as closely together as possible. These three atoms of *equal size* (even though not of equal weight) then provide an equilateral triangle. This assumption forms the basis of my system to enable the eye to see the location of the atoms in the form of equilateral triangles closely connected to one another. Therefore I not only picture *carbon dioxide* as triangles, but also *water* and *hydrocarbon.*

Carbon is indicated by C, the first letter of its Latin name, carboneum; oxygen by O from oxygenium; hydrogen by H from hydrogenium. Therefore, water HHO, consisting of 2 atoms hydrogen and 1 atom oxygen, and the simple hydrocarbon CHH, consisting of 2 hydrogen and 1 carbon, produce a triangle of equal size to the carbon dioxide.

Hydrocarbon CHH is the product of the electrolytical effect of sunlight which separates the electronegative oxygen components OOO from the electropositive components carbon and hydrogen C and HH in water HHO and carbon dioxide COO. Water serves as an aid in this process. According to the firm law that *opposite* poles attract each other, it becomes clear how 3 water molecules can group alongside carbon dioxide in this manner:

From such a hypothesis a weak sunray suffices to split off the clearly pre-formed hydrogen peroxide $\frac{HO}{OH}$ because this is the form in which the negative oxygen of the plant substance is liberated.

The result, then, of 6 carbon dioxide molecules which form a regular hexagon,

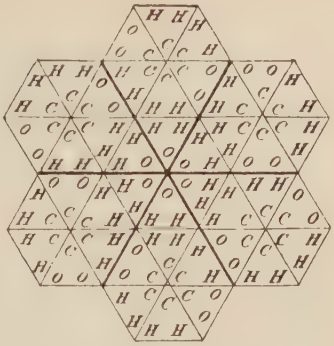


Grape sugar
$C_6 H_{12} O_6$

in union with 18 water molecules at the periphery as separation products, is 12 hydrogen peroxide and 1 molecule *grape sugar*. The latter is shown here.

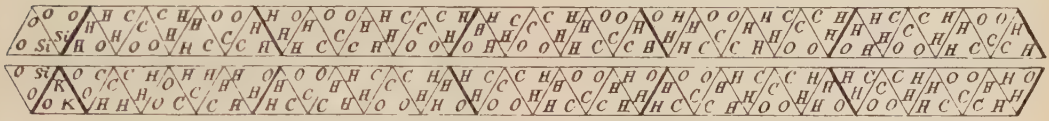
The significance of this figure is that the grape sugar represents an *in-between stage* towards pure oil substance inasmuch as pure water and carbon dioxides, *together* with already completed oil-forming gas (ethylene $C_2 H_4$) are still found together.

Without this intermediary stage, the formation of *cellulose* (wood substance) and the consequent growth of plants would be impossible. The *negative* edges OO of the grape sugar, which imply carbon dioxide COO, chemically unite with the *electropositive* hydrogen edges HH which belong to the hydrocarbon substance of an adjacent sugar molecule. The equivalent of such edge *condensation* so that it can cluster together with 6 groups of its own kind.



Starch (amylum)
6 ($C_6 H_{10} O_5$)

The figure shows that by splitting into three parts, *dextrin* results consisting of 2 dehydrated molecules of sugar with



Potassium cellulose $K_2 O, \times (C_6 H_{10} O_5)$

is an edge *separation* that takes place every time at another place because water HHO is liberated. Therefore, greatly varying group formations result according to whether a *horizontal* or a *spiral* or a *ray-like* formation takes place.

The force with which positive and negative bodies attract one another and like bodies repel one another is a common law valid throughout universal space. When similar bodies stick together it is assumed that the positive pole of the atom joins the negative pole of the neighbor atom. This is called polarization.

$$+ - + - +$$
$$- + - + -$$

Cellulose illustrates a horizontal and vertical arrangement of condensed grape sugar.

Starch, on the other hand, is a ray-like group of 6 sugar minus 6 water points. Existing in bread grain together with the mineral-binding cellulose and protein substance (gluten), starch (amylum) comes from cellulose (wood) after having stripped off its support-holding minerals, only 2 water points remaining. When the missing 2 water points are restored, the group again splits in the center where the joining sides touch one another as an equivalent of its double-edged condensation. In this way grape sugar is regenerated.

Barley malt sugar is obtained by soaking barley grains in warm water so that they begin to germinate through water absorption whereby the barley starch is transformed back into dextrin and sugar malt, an indisputable proof that bread grain originates from plant sugar. When barley malt and hop are boiled and then fermented, the liquid decomposes into alcohol and carbon dioxide gas and then is called *beer*. When the fermented liquid is distilled, *whisky* is obtained.

Another example of the ray-like grouping of sugar molecules is provided by the hepta-dilactid group illustrated on page 23. This shows a chemical condensation of *seven* grape sugar, provided we strike out the water elements HHO in the

periphery opposite the carbon dioxide of the central dilactid, on top and below. This is a demand of the law of force equivalence. For not only all 14 water points of the 7 sugar molecules must be chemically separated, but a total of 16 times water as a reciprocal value for the chemical condensation of 16 hydrogen with 16 oxygen. Because I claim that such water separation must take place either at the *points* of the sugar molecules or in their periphery, I adhere to the observations of our senses which show us the radiation of the electric tension as well as the effects of electric discharges at the *points* of the substances in the first place, and in the second place in their *periphery*. The discharge of various types of electricity when a cardboard is placed between the positive and negative currents shows us that the movement of electricity drags *substance* along because the surface of the cards *accompanies* the electric currents in both directions, that is, only to such an extent that corresponds to the intensity of the electric current. Larger quantities of electricity have stronger effects. Lightning that flashes through the tree crown and from there spreads into the roots through the conductive sugar sap between wood and bark can be so strong that it rips the bark off since it radiates at the periphery and is *accompanied* by the tree substance insofar as this is movable. I therefore assume that the electric discharge impact at the *periphery* is not a coincidence but strictly *according to physical law*.

Without such peripheral water separation, and as the hepta-dilactid group can exist when it absorbs the 2 lost water parts again out of the plant sap, it represents 14 parts lactid (COO, CHH, CHH), i. e., lactic acid minus water. These 14 dehydrated lactic acids reciprocally unite chemically with one another through their opposite poles like a chain which can only break into glucosides by the power of the sun. Only thereafter is the chain chemically vulnerable because its broken surfaces become accessible to the *oxygen* and the *ammonia*. I have given an example of the union of a hepta-dilactid fragment with ammonia in the *Table of Figures* showing almond, amygdalin and the deadly nightshade atropine.

If now, however, we carefully test the grouping of the atoms in the hepta-dilactid, we find, notwithstanding the exterior solid union, four vulnerable places in the interior which are susceptible to separation as well as to oxidation. These are the 4 edges where 4 hydrocarbons of the central dilactid join with 4 hydrocarbons of the peripheral dilactid groups. Such an accumulation of hydrogen in condensed condition must — analogous to the platinum sponge hydrogen ignition machine — be highly inflammable due to oxygen and we do indeed find the chemically carbonized remains of such lactid groups quite generally amongst plants. This characteristic substance is called tannin.

Tannin originates when 4 hydrocarbons of the central dilactid with 12 oxygen burn into water and carbon dioxide and the created 4 carbon dioxides are detained by the hydrocarbons of the immediately adjacent lactid groups.

In the creation of aldehyde by oxidation of alcohol we see the validity by which the condensation of a hydrocarbon with an atom of oxygen forces

Tannic acid
3 (C_{14} H_{10} O_9)

the separation of water at another place. As a consequence we have assumed 12-fold separation of water for the mentioned oxidation of the hepta-dilactid with 12 oxygen.

Since 4 parts water have been explained as an oxidation product, a further 8 separations must take place at the per-

iphery. In exploring this it appears that, taking into consideration the separations of 2 water that already took place on top and below the hepta-dilactid, only 7 times the elements of water have remained at the periphery if the symmetry of the groups is to remain intact. Under these circumstances the splitting of the groups into 3 similar parts now follows as the twelfth and last separation corresponding to dextrin. In this way 3 molecules *tannin* result in C_{14} H_{10} O_9 each.

Tannin has far more significance in plant growth than has previously been suspected. It comes into and disappears from plants in accordance with the seasons since it can change back into sugar by the absorption of water. Its relation to starch, which is subjected to a similar fate, is like the rising and falling bucket in a well. If in a certain season the plants contain much tannin, they will have proportionately less starch; during another season the proportion may be reversed, depending upon the amount of rain and sunshine. The production of starch requires moisture. *Wet* rice fields form a typical example of this fact as there is *no trace of tannin in the rice grains*. The condition is quite different in *dry* fields, in drought and in sunshine. The barks of nearly all trees contain tannin, the same as the shells of many seeds, numerous roots and leaves and the unripe pulp of fruits. Also, tannin is the original substance which plays an effective part in the creation of *insects*.

It is of primary importance to accept the full value of the atom arrangement in the sugar molecule. This is because sugar substance is the key with which all doors that were hitherto closed can easily be opened and behind which the processes of life take place. Accordingly, I have made it clear in the *Table of Figures* what large numbers of substances appear to be pure condensation products of sugar substance. Surprisingly, many more substances are clearly represented as simple fragments of sugar or condensed sugar. In these explanatory figures I have not even included the compounds of sugar with calcium, potassium, magnesium and sodium hydrochloride, phosphate and sulfate.

Consequently, I have depicted calcium, potash, magnesia and sodium as Ca Ca O, KKO, MgMgO and NaNaO in analogy with water HHO. The atomic weight of calcium has been set at 20, of potassium at 39, of magnesia at 12 and of sodium at 23. Chlorine must be given an atomic weight of 71 and with this supposition, hydrogen chloride can be indicated with the chemical symbol C1 HH in accordance with hydrogen sulfide SHH, water OHH and hydrocarbon CHH.

Ammonia NHHH requires a special consideration because, in spite of its being made up of 4 atoms, it nevertheless takes up the space of a triangle due to the fact that the nitrogen can take up three different measurements of volume according to whether it is chemically united with hydrogen, carbon or oxygen. Nitrogen is so elastic and so compressible that its volume completely disappears when combined with 3 hydrogen to form ammonia. On the other hand, it demands its full space as soon as it stands next to oxygen. Upon this ability to expand and contract rests in part the rhythm of our elastic lungs, whereas it is the phenomenon of electricity that plays the main role in the beat of the heart.

Through its union with 1 lactid group (COO, CHH, CHH), ammonia creates gelatine sugar (COO, CHH, NHHH) which plays an important part in the plant albumin as well as in the animal body. For instance, the aggregated gelatine sugar in cartilage is the source of *automatic motion* in the animal body (as in the ear and nose) while a compound of ammonia with phosphoric acid and stearin fat in the form of nerve substance spread over a delicate tissue of gelatine sugar or leucine makes *conscious* motion possible, as will be explained later.

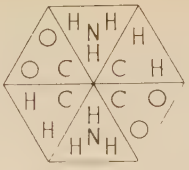
All cellulose (wood pulp) includes minerals with which it is chemically combined due to the dissolving power of the glycolic acid COO CHH HHO existing in the sugar group. When this glycolic acid binds ammonia NHHH and in return separates water, then gelatine sugar (glycoprotein) COO CHH NHHH results and with its help the minerals are chemically united. When the plants are burnt, i. e., when the glycoprotein is burnt into carbon dioxide, water and nitrogen, wood ashes are left over. Even if their number and kinds are small, yet through the varying proportion by which they participate in the construction of the plants they regulate the numberless different forms of plants.

The essential components of plants are calcium earth, magnesium earth, potassium, sodium, iron oxide and manganese oxide united with carbon dioxide, silicic acid, phosphoric acid, sulfuric acid, fluorine and chlorine, whose bases are united by the dehydrated glycolic acid COO CHH, and the acids are chemically bound by the ammonia of the glycoprotein.

The atomic structure of protein shows that the connecting link between plant sugar (grape sugar) and animal sugar (gelatine sugar) is ammonia NHHH. Plant sugar consists of 4 hydrocarbon, 2 carbon dioxide and 2 water, whereas animal sugar is made up of 2 hydrocarbon, 2 carbon dioxide and 2 ammonia.

Plant sugar =
2 lactid acid
2 (C_3 H_6 O_3)

Animal Protein. Lean meat which in summer is exposed for sale in the markets begins rapidly to undergo chemical decomposition. The products of decomposition have a *poisonous* character since meat contains nearly a



Animal sugar-protein =
gelatine sugar = 2 glycine
2 (COO CHH NHHH)

quarter of its weight in cyanogen CN compounds plus hydrocarbon CHH, the remaining three-quarters consisting of the constituents of water. How different in this respect are milk, cheese, eggs, whole grain cereals, starch, fat and plant albumin (protein). Even this albumin, though it contains nitrogen, is not based on cyanogen compounds but upon sugar and ammonia NHHH. The cyanogen compounds of meat are produced from plant albumin by the chemical separation of water. Hence, a *lacto-vegetarian* diet rather than a meat diet is to be recommended for children and adults as a protection against all forms of diseases.

The fact that the *gelatine* of cartilage upon boiling in hydrochloric acid takes up water and yields grape sugar, renders it certain that it must have been formed from dehydrated sugar matter and ammonia. This also explains the formation of *sugar* in the liver from the blood plasm during diabetes when mental stress, sedentary habits and irritations cause a chemical splitting of the blood albumin, *lymph* and *fibrin* being formed at the same time.

Silk Fiber. The true nature of albumin as originating from grape sugar and gelatine sugar, and of fibrin as containing mainly gelatine sugar, is best studied in silk fiber. Raw silk contains two-thirds fibrous substance (fibroin) and one-third gelatine (sericin), and both substances are recognizable as split products of the same basic material.

Sericin C_{15} H_{25} N_5 O_8 = 5 gelatine sugar plus 1 grape sugar plus 2 oxygen minus 6 water and 1 carbon dioxide. The 2 oxygen are withdrawn from 2 parts of fibroin since fibroin C_{15} H_{23} N_5 O_6 = 5 gelatine sugar plus 1 grape sugar

minus 7 water, 1 carbon dioxide and 1 oxygen.

Observations of this kind made from the chemical decompositions of silk fiber spread a flood of light upon the origin of animal tissue and its alterations during disease. The silk of the silk worm is, however, by no means free of ash constituents. On the contrary, it always contains at least $^{6}/_{10}$ percent. This content of earthy substance is conditioned by the chemical combining power of the gelatine sugar, which forms the basis of the albumin.

Gelatine sugar COO CHH NHHH, owing to its content of glycolic acid COO CHH and of ammonia NHHH, is enabled to combine with both acids and bases. This fact definitely upsets the view that inorganic matter, e. g., salt, Glauber's salt, sulfate of lime (gypsum), etc., is incapable of being assimilated by our organism, and it is further confirmed by the salutary effect of the saline mineral waters.

Further, the minerals that are insoluble in water, such as phosphate of lime, become soluble by combining with the gelatine sugar of the blood or the albumin of the lymph. This is attributable to the hydrocarbons CHH held in the gelatine sugar. What its effect is we can understand from the solubility of the methylic sulfate of baryta as compared with the insolubility of the sulfate of baryta.

This explains the way in which the lymph-holding sugar and gelatine sugar can transport in solution earthy substances like phosphate of lime to the parts where they are needed and how this phosphate may be deposited when either acids, e. g., lactic or oleic acids, combine with the gelatine sugar or when the hydrocarbon CHH, which serves to keep it in solution, is oxidized by the blood oxygen into carbon dioxide COO and water HHO, which is then carried off in the venous blood.

OIL SUBSTANCE

In the preceding chapters we have learned the relationships that exist between *starch, gum, sugar* and *tannin*. When we consider that 6 sugar, which can be liberated from 3 tannin, can again condense into starch, we recognize a type of circulation between the four substances, starch, dextrin gum, sugar and tannin, in the sense that these substances can *turn into one another* under the influence of heat and moisture. It is therefore not surprising that they are frequently found together in plants — they are only *sugar in various forms*.

Oil substance, which also originates from sugar, is of a different nature. This can be seen in the sugar figure which shows oil substance in the form of 2 pairs hydrocarbon. As soon as the oil substance has separated completely from the sugar in one way or another, it cannot again change into sugar but must burn in the air by slow oxidation because it is not in any way protected from this.

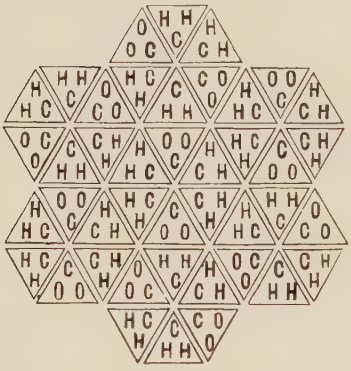
There seem to be a great number and variety of oil substances; oil exists in nutmeg, in bay berries, in walnuts, almonds, poppy seed, rape seed, linseed, cloves, cinnamon, lemons, oranges, etc. But they are similar to many of the glucosides in that they all originate from the same source, i. e., sugar substance. Some kinds of oil, such as cinnamon oil, bitter almond and vanilla oils, can quite clearly be recognized as some hydrocarbon to which a sugar fragment has remained attached. Others have completely separated from sugar as for instance lemon oil and all camphor-tasting oil such as cajuput oil, cardamon oil, copaiba oil, etc.

We shall see how relatively small the distinction is between these oils so that insects which use these oils for their formation also deviate only slightly in form. Only two large oil groups must be distinguished, i. e., the so-called *fatty oils* and the *essential* (volatile) *oils*.

From my study of sugar compounds, I have discovered that all fatty oils, without exception, originate from stearin tallow, whereas the essential oils arise from sugar substance. We shall first discuss

the fatty oils. For a better comprehension, please refer to the two following figures:

Stearin tallow



Hepta-Dilactid

Stearin tallow, C_{42} H_{84} O_8, has the same structure as the hepta-dilactid. It is a group composed in the manner of a honeycomb consisting of 7 regular hexagons. Each of these 7 hexagons consists of 6 hydrocarbons CHH so that in total we have $7 \times 6 = 42$ hydrocarbons. Therefore, stearin tallow is a hepta-dilactid in which all oxygen has been replaced by hydrogen; furthermore, at the outer edge of the group four pairs of oxygen are composed in such a manner that a St. Andrew's cross ✕ is formed if we draw a connecting line between each two oxygen pairs which are placed obliquely opposite one another. This is according to the law of symmetry.

The chemical process on which the creation of stearin tallow is based is the following: Only 8 oxygen — and not 12 as is the case in tannin — unite with the 4 hydrocarbon in the center of a hepta-dilactid so that all 4 hydrocarbon oxidize into formic acid $\begin{matrix} CHO \\ HO \end{matrix}$

In such an event, the entire group is set into impetuous motion, because there is no room for 5 atoms at a location where before only 3 atoms existed, and a separation of water cannot take place because the created formic acid does not liberate the elements of water at the temperature of plant vegetation without the co-operation of ammonia. The impetuous motion in which all 42 sides of the hepta-dilactid groups are involved requires its *equivalent.* How will this occur? How can we, by calculation, confirm the law of Mayer concerning the maintenance of power and the equivalence of forces at oxidation of the hepta-dilactid by 8 oxygen?

This brings us to the *most important* point of our investigation, where it seems as if every indication fails because no assistance is provided by the 424 meter kilogram as the mechanical equivalent of a heat unit. Regardless of the services rendered by Robert Mayer through the establishment of this figure, we are forced to look for an independent unit as the equivalent of force.

I consider the *union of 2 atoms hydrogen with 1 atom oxygen forming water* as such a *unit* measure since in such a case, according to physical science, the very smallest measure of heat is liberated. Because in oxidation of plant substance the condensation of 2 hydrogen with oxygen always follows only by oxidation of 2 hydrogen which *are united with carbon* and since, further, a *chemical union* is equivalent to a *collision,* we may set the *unit measure* of oxidation by 1 oxygen atom as equivalent to one single-edge shock, provided we take into consideration that the hydrogen edge HH of a hydrocarbon CHH is the subject of the chemical attack. In addition, the chemical *condensation* of 2 hydrogen and 1 oxygen must be equivalent to the chemical *separation* of 2 hydrogen and 1 oxygen.

We may therefore consider the following three values as equivalent: *addition* of 1 oxygen; an *edge shock; breaking*

away of 1 oxygen. If the equivalent is to be calculated for the shock of 42 edges at the oxidation of hepta-dilactid, it can only be found in the breaking away of 42 oxygen. The natural aid for this process is water of which there is no lack in plants. It absorbs the oxygen by forming hydrogen peroxide. In sunlight the latter immediately decomposes into water and oxygen.

According to calculations, however, there are only 28 oxygen in hepta-dilactid and not 42; therefore, to cover the equivalents, another 14 oxygen must be separated from water. This takes place while 14 times 2 water in 14 hydrogen peroxide and 14 times 2 hydrogen are separated.

(2 water
= hydrogen and hydrogen peroxide)

Under such circumstances 14 times 2 hydrogen are liberated and it is natural that 2 hydrogen will fill the space which was taken up by 2 separated oxygen. The carbon is disturbed very little in this process because in every dilactid group it is held fast by 8 hydrogen.

It is important to point out that the addition of hydrogen to its equal (which is the relationship in this case when we examine the group accurately) does not require an equivalent. This is due to the fact that hydrogen forms an exception as an elastic, independently moving substance which represents the cohesive, universal primeval substance as we shall learn later. It should further be mentioned that the formation of hydrogen peroxide apparently is equal to an equivalent unit since, according to the force of opposites, this causes a condensation of oxygen with the *hydrogen* edges of the water.

In regard to the 8 oxygen which have had an oxidizing effect on the hepta-dilactid, these cannot get lost but must take a centrifugal place at the conclusion of the reaction in the same directions which correspond to the 4 oxidized hydrocarbons. In this way, stearin tallow is created, 2 (C_{21} H_{42} O_4) = C_{42} H_{84} O_8, which produces nerve fat (lecithin) when it unites with ammonium phosphate NH_3 PHO_3. In this case two edge splittings must take place as equivalent for the chemical condensation with ammonia and phosphoric acid while 2 water are separated. Lecithin = C_{42} N_{84} O_9 NP.

The origin of stearin tallow from sugar substance (hepta-dilactid) is illustrated practically by the oily rape seed and by the sweet rape flowers so eagerly sought by the bees and which are accessible for oxidation. All fatty oils, without exception, originate from stearin tallow, which I have made clear to the visual eye by showing the atomic structure of fat substances in the *Table of Figures.*

The hitherto prevailing view of chemists that fat substances are glycerides now loses its basis. Glycerides are only propionic acids, CHH, CHHOO, CHH hanging at the edges of the groups within the molecule and which change into glycerin when they absorb water. Apart from 4 propionic acids there are also 2 unoxidized groups of 3 hydrocarbons each at the periphery of the stearin tallow molecule. As soon as *both* of these groups with 2 oxygen each change into propionic acid, a fourfold splitting at the edges results as equivalent for such chemical condensation with 4 oxygen, and the group accordingly decomposes into 2 molecules castor oil, 2 (C_{18} H_{36} O_4, C_3 H_6 OO) = C_{42} H_{84} O_{12}. (See Table of Figures.)

Thus, in consideration of symmetry and force equivalence, light is shed on chemical subjects which hitherto have been partly confused and obscure, partly completely pathless.

In connection with the creation of castor oil, the fourfold edge fracture can take place equally as well at another point as in the center, for instance, the newly-created propionic acids *themselves* can break off since each is attached to the stem of the groups with two sides. This explains the presence of *propionic acids* in East Indian castor oil.

Further, the following can separate from stearin tallow: *acetic acid* (leaving behind palmitin fat), *butyric acid, valeric acid, caproic, caprylic* and *caprinic acids,*

laurostearic, myristicic, palmitic, oleic and *arachinic acids.*

Now that we know that butter fat essentially consists of stearin tallow it becomes understandable how gradually *all the above-named fatty acids* can be found therein as the butter becomes older and oxidizes. The atomic structure of these acids is shown in the *Table of Figures.*

As to palmitin fat which is found in such abundance in roots, barks and seeds, we must assume the breaking away of 2 hydrocarbons after having been oxidized either into acetic acid or oxalic acid. This assumption is confirmed by the presence of acetic acid or oxalic acid, potash and calcium salts in plant parts which simultaneously contain palmitin fat, for instance, rhubarb root, peony root, carrots, elm bark, camomile, St. Benedict thistle, etc.

My *Table of Figures* which forms the solid foundation of structural chemistry sought for so many years, shows how train oil originates from palmitin fat by the breaking away of 2 propionic acids, how, further, myricilic acid (the basis of bee's wax) originates from stearin tallow by the breaking away of 4 propionic acids and, by the loss of 5 propionic acid, cerylic acid originates which forms the Chinese plant wax.

The degree of *mobility* and *meltability* of fat substances depends on how much or how little carbon is attached at the periphery. This is illustrated by castor oil, which shows 3 carbons at its periphery, and also by the following split products: *Laurostearin* with 6, *palmitic* with 10, *myricilic acid* with 12, *train oil* with 14, *cholesterin* with 20, *plant wax* with 2 times 15 carbon atoms at the periphery. Cholesterin only melts at 145° C. It is the chemical remains of incompletely burnt nerve stearin in the liver, in the brain and in the egg yolk. The biliverdin (bile pigment) shown next to it illustrates how, with progressive oxidation, cholesterin splits and — after no more hydrogen is available at the periphery for oxidation — unites 2 ammonia with the aid of 2 carbon dioxide.

My explanation of the creation of stearin tallow, which produces our life candle by its sixfold grouping around a center of 6 ammonium phosphate while congruent discs move *alongside* and *over* one another, forms the *foundation* on which is built my theory on the continuation of primeval creation.

A small kernel of lecithin (nerve stearin tallow) when it starts "breathing" oxygen is ample to produce a small animal whose body hardly needs a trace of ash constituents, for instance, moths (butterflies) or mites (lice).

Since stearin tallow is formed in *plants* where we find it in union with ammoniacal sugar and calcium phosphate, we can begin to understand why many oil-containing seeds, e. g., that of the Marianum *thistle,* are subject to being worm-eaten, or better said, moth-bearing.

The case is different in larger animals which not only require oil substance for their brain but also considerible quantities of salt and ash parts for their body. For several reasons these animals cannot be produced by *plants.* We shall investigate elsewhere how they originated.

For the present we must ask ourselves whether the stearin tallow could not also be created by uniting 7 groups of 6 hydrocarbons, thereupon being followed by their oxidation. This question must be answered in the affirmative, since the hydrocarbons can be obtained from sugar substance in large quantities by separation of carbon dioxide. This takes place especially by the specific function of the liver. Regarding liver activity, an ox is able to produce more than 100 pounds of tallow, not to mention whales and their fat.

A certain amount of blood albumin in the liver is constantly decomposed into sugar and bile. The bile, however, contains stearin fat united with dehydrated dilactid: C_{42} H_{84} O_8 + C_6 H_4 OO = C_{48} H_{88} O_{10}. As a result of the oxidizing effect of the air, chemists obtain the split product cholic acid from this substance. Cholic acid = 2 (C_{24} H_{40} O_5). Four oxygen with their normal oxidizing and splitting effect have been added to the stearin tallow. (See the figure of cholic acid = bile tallow fat in the *Table of Figures.)*

Such a production of stearin tallow by the accumulation of hydrocarbons from sugar or albumin substances and their

subsequent oxidation can be explained by the effect of a higher temperature in the liver than is usual in the blood. In midsummer the hydrocarbons of decaying animal and plant substances are also brought together in this way in the form of stearin fat, and worms and maggots are created if phosphate salts are present.

The same process takes place in the liver, whose temperature is already very high, *when the blood is overheated.* This is caused by an intense nerve activity in this organ, i. e., it continuously burns the substance of the finest ends of the pneumogastric nerve which comes from the brain, of the diaphragm nerve which branches off to the right from the spinal cord and of the intestinal nerve (splanchnicus) with the oxygen from the capillaries of the liver artery. The ramifications of this artery are accompanied by the said nerves in numerous interlacings until these nerves are completely dissolved. Traces of burnt nerve substance are then found in the liver vein blood in the form of oxidation and split products of the nerve albumin (cholesterin, cholin, neurin and glycerin phosphoric acid).

As an equivalent for such an active oxidation of nerve tallow, the splitting of considerable quantities of blood albumin into sugar and stearin tallow follows. The latter is absorbed in the form of soap (i. e., united with soda and ammonium salts) by the lymph vessels of the intestinal tract which furthermore receive phosphate salts and split albumin from the chyme. These are *grouped symmetrically* around the bile tallow and thus they are able to supply rejuvenated substance to the nerve cords.

If the liver produces stearin tallow as described above and the phosphate ashes of the burnt nerve substance as well as salts from the blood are added, it only requires a further blood overheating for the liver to bear *worms.*

This indeed occurs frequently in *sheep* that are ruthlessly shut up in badly ventilated sheds. The poor animals cannot get a breath of cool air in the hot stable so not only does their overheated liver bear the liver leech *(Distonum hepaticum),* but also the hot blood in their brains which is overloaded with carbon dioxide produces the staggers worm. It is the overheating of the blood that demands its equivalent. This is also proven by the victims of hunts as we find liver worms in hares, deer and foxes that we have chased and in dogs which have been injured by deer's antlers during the hunt. Liver worms need only a two-hour blood overheating for their creation — like mushrooms after a thunder shower. We must write a *completely new chapter* in the history of the creation of the multitude of parasitic animals, putting aside all the fairy tales. As a result of sounder knowledge in many fields, we shall certainly judge differently from now on.

The condemnation is closely connected with the judgment. A district judge admitted to me that he would have passed a completely reversed decision in a certain case if he had known earlier of this spontaneous creation of parasites. The case ran as follows: A landowner discharged his shepherd since a large number of his sheep had died of the leech disease (liver putridity). He objected when the shepherd claimed wages, saying that the shepherd was liable for the perished sheep as he had not kept them away from marshy grass where they had contracted the larvae of the liver leech. Since he produced scientific books on the history of the origin of liver putridity, the claim of the shepherd was rejected. The interested judge now stated that the present-day scientific books on this subject would no longer form the basis for his judgment, and that he would more likely devote a period of time to the stables to determine for himself whether they were well-ventilated and not *overheated.*

It is in fact the summer heat that accomplishes all kinds of transformations by combining the oil substance of what appear to be the most varying substances. This, in turn, results in the original creation of innumerable kinds of insects. While we now review the manifold ways in which the phosphate-containing nerve tallow (lecithin) links up, we make the most interesting discoveries.

The wandering of the hydrocarbons and their combination with one another form the basis for the possibility of the creation of larger atom groups or molecules. After I first drew general attention (in 1885) to this fact, I am now happy to find that I have some followers. In Coethener's *Chemical Repertory* of March 2, 1889, I find the expression "wandering of the hydrocarbons" repeated in the discussion on Herman Moeller's *Anatomic Research on the Existence of Tannic Acids:* "The wandering of the hydrocarbons as tannin compounds appears highly probable to the writer."

Before I further explain the accumulation of hydrocarbons out of the tannic acids into insect nerve oil, I should like to refer to other known phenomena. First, we can frequently observe that heavy beer drinkers put on much weight. This is comparable to our domestic animals who are mainly fed on starchy food for the purpose of fattening. Such accumulation of fat proves that *fat substance has the inclination to pile up at a place where fat already exists.*

Further, if we take a little butter out of a dish with a knife we will not succeed in depositing it on a wet piece of paper or on our tongue, but it will easily cling to a dry plate, to dry bread or to the teeth. The reason for this is that butter fat, which essentially consists of stearin tallow, has the tendency to cling either to its equivalent or to earthy or to metallic substances, whereas it rejects water. However well known the fact is that fat will not voluntarily mix with water, the explanation in the sense that stearin tallow is forced by physical circumstances to cling to its equivalents has not been sufficiently accepted to explain the important functions of life.

Fat Clings to Fat. Without this compulsion of fat to cling to fat it would never have been possible to collect the large quantity of nerve tallow required for the brain and spinal cord of a calf - not to mention the whale calf. More specific details about this are given in *The Chemical History of Creation* section of this book. I wish to make it clear that such "clinging together" as we have seen in the stearin tallow is caused by the compulsory force of *opposites,* which can be recognized at the periphery of the stearin tallow molecules in the projection of which some are *provided with* oxygen and some are *without* oxygen. While the oxygen edges of one molecule cling to the hydrogen edges of another (as is the case when hepta-dilactid is formed out of sugar), such chemical condensation of 2 oxygen with 2 hydrogen involves the lawful equivalent of 2 edge fractures in the form of separation of 2 water at the opposite oxygen poles. The effect of this is that instead of the group CHH, CHHOO, CHH, only CCCHH remains behind, i. e., a *resinous substance* because resin is formed out of a group which originally contained twice as much hydrogen as carbon atoms, a considerable number of hydrogen atoms having been lost by oxidation. In such a way resin originates from essential oils under vital alteration of the original properties of the latter.

A new situation is now created by such a predominance of the carbon over the hydrogen in asmuch as a resinous substance clings more easily to firm objects than intact stearin tallow. Such a physical property of resin is in fact caused by the *carbon* which it contains. Further, it especially has the property to stick in very fine particles to its equal and to other solid objects. The soot that obstructs stove pipes, the lamp black clinging together in flakes and the force of pulverized charcoal to absorb color and odor substances are well-known facts in this connection.

This cohesive trend of carbon also forms the basis of the adhesive power of gum arabic and gelatine as well as the coherence of the sinewy fibers with one another and with the bone substance. It is the cause of the sticking of catarrhal mucus to the chamber pot, of the adhesion of oyster protein to chalk rocks and of lithographical wax resin

color to raw etched rock; further, the sticking of fir resin to the tree bark and the teardrop-like flowing of mastic, incense, benzoin resin, amber, etc.

In addition, a *second* circumstance is to be taken into consideration; namely, the characteristic that through oxygen, hydrogen in the form of water can be split off out of a group of normal hydrocarbons so that carbon parts will locate at the periphery. This causes *firm layers* to be formed so that we find resin drops that are dry outside, but inside, as a result of intact essential oils, they are very soft and still fluid.

The creation of membranes or cell walls is founded on such peripheral accumulation of substance with a high carbon content.

Stearin tallow which condenses with its equivalents is also characterized by these membranes. Every tiny tallow grain which lies in the intestines possesses such a *membrane* which must first burst through heat so that the contents can flow out. Every minute drop of butterfat in milk also has such a *membrane* which must first be mechanically torn apart so that the butter grain can come out.

Due to the isolation of condensing tallow drops by an airtight skin against the oxidizing and splitting influence of the oxygen in the arterial blood, the fatty deposits in animal bodies remain protected from turning rancid. If this were not the case, a cow could not produce a calf since the stearin tallow decomposes into small fragments in proportion to its oxidation and no animal could grow to a larger size. This consideration, incidentally, leads us to the theory that the first calf - before any cow existed - must have originated out of *sea water,* for the following reasons:

1) The water-rejecting property of stearin tallow favorably influences its adhesion to its equivalents as well as to a firm object, e. g., a rocky cliff.
2) Salt water only absorbs a small quantity of oxygen. This is the reason why *butter* is mixed with salt water as it does not so easily turn rancid.
3) The separation of nerve tallow from the salty blood water still takes place today. It is protected from the oxidizing influence of the arterial blood because the stearin tallow which is separated in the liver wanders through the bile duct into the intestines which are protected against air admittance. Supplied with phosphate salts, it then passes, not into the arteries, but into the oxygen-free lymph vessels.

We must always remember the force equivalent with which the oxidizing influence of the oxygen of the atmospheric air opposes a collection of larger quantities of fat substances by the splitting which it causes. Therefore, the nerve tallow from which the whale was produced had to arise in a medium where neither the sun heat melted the tallow lumps into oil, nor the hot air of the equator oxidized the tallow and caused chemical separation; the same condition applies to all animals with relatively large size brains: mammoth, rhinoceros, horse, buffalo, man.

For a larger animal to have been created in the *hot zone out of the water,* special protective processes had to take place. The character of these processes can be measured if we take into consideration that the protein of the ostrich egg inside its thick protective calcium crust metamorphoses into an ostrich in the *hot sand* by slow oxidation. Without the protection of such a cover against oxidation and separation when exposed to the atmospheric air, only *smaller* animals could originate. We shall now see *out of which* substance this took place and *still takes place.* For this purpose we must once more observe *tannin* because it contains the tensional powers which now come into consideration.

Tannin and Essential Oil. Tannin, which originates from sugar, can again absorb its chemically separated water under the favorable influence of moisture and *sun heat* and thus change back into sugar again. During this process it liberates the two carbon dioxides which were attached. This explains why tannin gradually disappears from ripened fruits but is found in unripe fruit (apples, cherries, grapes, etc.), a trait which tan-

nin has in common with starch.

Not all plants, however, that contain tannin in large quantities during certain seasons have that much more sugar during other seasons when the tannin has practically disappeared; in its place we then find a substance which was *not* present during an earlier stage of vegetation, namely, *volatile essential oil.*

Later we arrive at yet another stage in which both the tannin and volatile oil have disappeared, manifested by the appearance of *worms, maggots, moths* and *butterflies.* Consequently, all roots and herbs, which become wormy after being stored for a long time undisturbed, lose their normal scent.

In this connection I would like to state in advance that certain volatile oils, i.e., hydrocarbons of a specific scent, only *seem* to disappear. In reality they have *polarized* (paired with themselves) and as a result have become subjected to a physical tetanus cramp that forces them to form crystals. As an example, *bitter almond oil* belongs in this category. After it has polarized it crystallizes into strongly light-refracting prisms which are *completely scentless;* it is then called *benzoin.*

The same characteristic appears in many hydrocarbons in which a molecule only contains *one* atom oxygen. Chemists call such hydrocarbon-oxides *ketones,* respectively *aldehydes.*

The law which governs the mentioned pairing is that of *symmetry.* Many hydrocarbons which only contain *one* oxygen atom are not symmetrical but are unbalanced, vibrating backwards and forwards, and are volatile. It seems that the very least which is required to take away the volatility from an oxidized group of hydrocarbons, is a second oxygen atom.

Accordingly, the so-called methylaldehyde CHH, O is a gaseous substance. The formic acid CHH, OO which it produces, however, is *crystallizable* and the *paired* methylaldehyde CHHO, OHHC even becomes so solid that it melts only at 152° C. after which it again turns into normal gaseous aldehyde.

The same applies to the ethyl aldehyde CHH, CHH, O which is so volatile that at summer temperature it cannot be transported at all because it boils already at 21° C. (70° F.). However, as soon as it absorbs a second atom of oxygen, it supplies the crystallizable glacial acetic acid CHH, CHH, OO.

There is also the *bitter almond oil* (benzaldehyde) C_7 H_6 O; this attracts a second oxygen atom and then forms the crystallizing benzoic acid C_7 H_6 OO.

This is sufficient to clarify that the crystallization capacity of certain hydrocarbons, after they have absorbed 2 atoms oxygen, as well as the *pairing* of such hydrocarbons which only possess *one* oxygen atom, is obviously connected with the disappearance of the specific scent of certain substances.

On the other hand, I have already mentioned that worms only appear when the substances have lost their scent and I aim to explain that the production of insect protein ends in a crystallization process of oxidized hydrocarbons united with phosphate salts and ammonia. The result is that a *mutual decomposition* takes place beween the ammonium phosphate and the hydrocarbons which produces *phosphine* on one side and *carbon* dioxide on the other, both of which stand next to *ammonia* and *hydrocarbon.* All of this takes place on the condition that *air is admitted* because in a vacuum or in a space excluded from air the animation of hydrocarbons with phosphate salts and ammonia into animal germs *cannot* take place. Therefore, the grain which was deposited in the stone coffins of Egyptian mummies could not produce weevils but retained its germinating power for 3000 years.

We have progressed so far in our observations that we may step over the threshold into the *soul of life* since *ammonium phosphate, oil* and *air* provide us with the indispensable substances for body and soul. In the *air* and united with ammonium phosphate, oil substance changes into muscle flesh, tendons and sinews. In order to understand this, the synopsis provided by the magic chemical formulas is indispensable.

Let us assume that a group of 8 or 10 hydrocarbons attracts 2 atoms oxygen out of the air. The result can be caprylic

acid $C_8 H_{16} OO$ in the first instance and caprinic acid $C_{10} H_{20} OO$ in the last instance (see figures). Both fatty acids are contained in stearin tallow inasmuch as they still have large amounts of hydrocarbon alongside them. Since for the time being we are not concerned with the hydrocarbons which are distant from the oxygen but only with those directly neighboring the oxygen (whose vacated places are only gradually taken by the other reserve hydrocarbons), we shall, for the sake of simplification, be content with caprinic acid $C_{10} H_{20} OO$.

The following product then results out of caprinic acid and ammonium phosphate in addition to 2 oxygen:

NHHH	OOO	PH			NHHH	OO	O	PHHH
CHH, CHH, CHH	CHH	CHHOO	=		CHH, CHH, CHH	C	HH	COO
CHH, CHH, CHH	CHH	CHH			CHH, CHH, CHH	C	HH	COO
NHHH	OOO	PH			NHHH	OO	O	PHHH

2 oxygen = OO

The significance of this formula is that the *dead substance has been brought to life by the entrance of 2 oxygen.* Two parts water and 2 parts carbon dioxide have been liberated and due to their gaseous evaporation they create mechanical movements — in analogy to the carbon dioxide which lifts up the gasometer and the water vapor which drives the piston of the steam cylinder. But in addition to this, the *sinew substance* has been created which springs forward and backward within itself, and also 2 parts will-o'-the-wisp or phosphine 2 (PH_3).

It goes without saying that this newly-created substance would immediately choke and become lifeless again if liberal amounts of oxygen were not available to light up the phosphine and to keep the flame of life burning uninterruptedly. (This is the reason why a hermetic seal is *not* permitted if living germs of life are to be created.)

I repeat, therefore, that calcium, attached to phosphoric acid and in contact with oil substance and ammonia, can cover itself, at least to a small degree, with flesh and sinews when the wind blows over it. The prophet Ezekiel has hyperbolically prophesied this in Chapter 37. We must clearly understand the following:

Firstly: The basis of springy sinew is formed by the *gelatine substance* which consists of oil substance and ammonium carbonate. Its independent elasticity is proven not only when we bend our nose and ears (they move back to their normal position completely by their own force) but also by the trembling movement of a cooled-off solution of broth from calf's feet or veal.

We do know that *gelatine,* when treated with sulfuric acid, splits into two uneven parts, namely into leucine and glycine. These two substances are nothing but *hydrocarbons* with *ammonium carbonate* as they appear together with phosphine in the above formula.

GELATINE = Glycine = CHH, COO, NHHH. = gelatine sugar
Leucine = CHH, CHH, CHH, CHH, CHH, COO, NHHH.

It can easily be understood that the carbon dioxides COO standing next to the ammonia NHHH can originate equally well from simple oxidation of hydrocarbons as from the exchange of oxygen for hydrogen. In no case however, will either the one or the other be effective without the co-operation of *heat* which enhances the mobility of the carbons. Therefore, our world of insects becomes the more lively the higher the summer temperature rises. To go further into the test of creation of gelatine-supplying connective tissue, the process of exchange of hydrogen for oxygen by the creation of phosphine is analogous to that of the creation of glycine out of monobromine acetic acid and ammonia.

$$\left.\begin{matrix}CHH,\ COOH\\CHH,\ COOH\end{matrix}\right\} Br + 4(NHHH) = \begin{matrix}H\\H\end{matrix} Br \begin{matrix}NHHH\\NHHH\end{matrix} + \left\{\begin{matrix}CHH,\ COO,\ NHHH\\CHH,\ COO,\ NHHH\end{matrix}\right.$$

Monobromine acetic acid + 4 ammonia = hydrogen bromide ammonia + 2 glycine.

In our case not bromine but ammonium phosphine is created next to *glycine,* with the peculiarity that the glycine has its ammonia *in common* with the ammonium phosphine. Thus, the ammonia has hydrocarbon carbonate COO, CHH on one side and phosphine PHHH on the other.

With such a characteristic *double formation* a substance has been created which is fully entitled to be termed *protoplasm* if we have the formation substance of *animals* in mind.

With the prevailing methods of piecewise studying the composition of nerve tallow by separating it into single members, its dual nature has remained hidden to contemporary chemists. It is clear that when ammonia is *common* to both oil and phosphoric acid, propionic phosphate (glycerin phosphate) and stearic acid must remain behind as soon as the ammonia is removed from the nerve tallow by sulfuric acid.

We have now discussed *gelatine* which originates next to phosphine when oil substance and ammonium phosphate oxidize by the air and we have studied caprinic acid C_{10} H_{20} OO. Let us imagine that twice the elements of water (H_4 O_2) separate from the caprinic acid. We then retain a hydrocarbon C_{10} H_{16} as it is contained in turpentine, lemon oil and in other essential oils. For this reason I have wondered if the usual mobility of turpentine oil together with its oxidation ability could also produce living animal germs from caprinic acid, provided that the rising plant sap supplies calcium phosphate and ammonium sugar to the fir needles to furnish enough protein to produce the geometric moth. We shall later find more evidence of this.

Once we have considered phosphine as a decomposition product between oil substance and ammonium phosphate we must recognize that the mental phenomena in reality are self-illuminating processess. We know that phosphine has the property to ignite itself as soon as it gets into contact with air. It then burns up with a kind of mild explosion which sets the entire connected group into a certain vibration. The combustion product is *phosphoric acid* but this does not get lost by any means because, in contrast to the exceptionally volatile phosphine, it is *heavy* and phlegmatic so that it must remain tightly clinging to its birthplace, so to speak. This is the more so since, born out of phosphine-ammonia, it lies immediately next to ammonia which has in the meantime changed the neighboring hydrocarbonates into glycine and leucine.

This process cannot be too strongly emphasized; the fact is that the phlegmatic phosphoric acid does not leave its place at all but the volatile *hydrocarbons wander to it* and continuously supplying hydrogen and oxygen. As long as air is supplied the phosphine which is prepared in this manner burns up unceasingly into water and phosphoric acid. This represents a continuous return to the previous condition in which the carbon dioxides (which arise out of hydrocarbons by oxygen exchange) and also the water (which arises from the combustion of phosphine) leave as gases. Thereafter ever newly-entering hydrocarbons repeat the same process.

Such a chain reaction between phosphoric acids and oil substance must — thanks to ammonia as catalyst — continue as long as new oil substance or sugar substance is added for constant combustion or until the hydrocarbons which are located around the ammonium phosphate have been consumed up to the last molecule.

Therefore, the quicker the mental part (the posphine) *burns up* the more lastingly will it cling as phlegmatic phosphoric acid to the physical substance. In contrast, the function of the soul is diminished when we neglect to furnish the system with heavy oxygen through deep breathing.

It is not the oily substances which burn *directly* like kerosene insofar as the nerve phosphate is concerned. But it is the ignition of *phosphine* which produces a soft glow and a warming force and forms the source of bright spiritual light. Our spiritual light grows dim and darkens in proportion to how much stuffy room air or carbon dioxide from factory chimneys or kitchen and cellar vapor of overpopulated streets, motor car exhaust, or close air of stifling workrooms and dormitories we must inhale instead of invigorating oxygen. (Open the windows and on Sundays go out into the fields and forests!)

The understanding of *phosphine* is the main basis for my theory of the original creation of the animal world and the functions of the nerve activity, and I must point to phosphine the more emphatically when present-day physiology completely disregards it. Our physiologists curtail our knowledge that the light and life processess depend on phosphate-holding fat which is already proven by the shining and fat-abounding rear parts of the glowworms (lampyris), by the one-sided tests of the split products of the nerve fat which have been achieved by the chemists in the laboratories. One earnest physiologist stated that in former times they wanted to attribute the spiritual light to the phosphate content of the nerve fat but that such an explanation became void after it was established that the nerve fat contained the very ordinary *glycerin phosphoric acid.*

Such physiologists do not know what they say because they forget that glycerin phosphoric acid is a compound of phosphoric acid with oil substance and they reject a rational system of life chemistry which is offered to them with the explanation that *chemistry is not their domain.* Consequently, they naturally cannot know that the potassium sulfate of mineral water, when it remains unsold in druggists' cellars for a year, changes with the hydrocarbon of the cork stopper into potassium carbonate and stinking hydrogen sulfide gas. Phosphine originates, in an analogous manner, if we cover a solution of phosphate salts with a layer of oil.

So much for the elucidation of phosphine upon whose constant creation, out of a circle of 6 ammonium phospate $=3$ ($NN H_6$, $PP O_5$) and 6 stearin tallow our consciousness depends as long as sufficient warm blood supplies igniting oxygen. That it also controls our *dreams* will be discussed in another chapter.

Secondly: The most perfect creature must be one which, apart from the purest fundamentals of movement and spiritual light (oil substance and ammonium phosphate), carries no other ballast, especially no lime dust, no silica, no potash, no gypsum. Or does a camel turn into a perfect creature because I load him up with bags and vessels and provisions for a trip across the desert? Does one become more perfect because one is doomed to drag along in the dust as an earth-bound worm instead of rising up into the air? I believe our fanciful pretension about perfection, which is formed because we do not know what goes on in the souls of the vibrating insects, should once be thoroughly examined on its justification.

I do not want to go so far as to represent the spiritual part, namely, the phosphine gas, as independently detachable and individually existing, because then we would have to address the will-o'-the wisp with Goethe's words: "You spirits, you float beside me." It is, however, quite certain that a much more *universal* extension is attributable to the spiritual substance than we, in our short-sighted self-glorification, normally admit and that the poet's words are true: "The spiritual world is not closed; Thy mind is closed, thy heart is dead."

It particularly cannot be denied in principle that in certain plant parts which contain protein and oil substance in addition to calcium phosphate, spiritual phenomena also appear, naturally different from ours because eyes and ears are missing. But in my opinion, in spite of their fine construction, eyes and ears are merely expedients which are not needed by the spirit which already reacts to the *telepathy of mind.* I know that this remark cannot be considered "scientific," but after certain experiments of "exact" science which I have experien-

ced, this does not worry me.

There may be some people who have no understanding of plant souls; for me, however, they are animated (having soul) and I believe it is the same in the plant world as among humans: There are more or less sensitive and more or less *noble souls*. The chenopod plant *(Chenopodium vulvarium),* which originates near cattle barns and manure heaps and in which dung beetle abound, is not pleasing to any of us. Quite a contrast is the dryad which lives in the fragrant linden tree and invites the elite of the insect world, the intelligent bees.

If our zoologists and anatomists were right, an organ would have a greater claim to perfection if it only served one particular purpose. That, I must say, is rather a limited perception of the formation ability and integrity of our nerve substance! Is a vertebral column which carries the spinal cord more perfect than the spinal cord itself? Is it further an imperfection if the vertebral column extends itself into a coiled tail, the beaver using its tail as a shovel or the kangaroo using it as a third foot? With this complex of feeble definitions of perfection and imperfection we only obstruct a clear understanding of the harmony which reigns over the entire creation. Every creature is perfect in its kind as, for example, a bee is no less perfect than man.

Thirdly: Logic demands that a bee, which depends on sweet sap for its *nourishment, originated* out of such sweet sap. This conclusion is supported by the chemical relationships in which the basis of the gelatine-yielding connective tissue, leucine, stands simultaneously for plants and animals.

Namely not only can the animal leucine be changed into the vegetable substance *valeric acid* by melting it with potassium hydrate, but it also supplies a substance which can only be distinguished from valeric acid by one hydrocarbon CHH. This is the caproic acid $C_6 H_{12} OO$ with ammonia leucine, after the formic acid CHH OO which it contains has been oxidized into carbon dioxide COO and water HHO.

From this viewpoint, leucine forms a connecting link between animal and plant substance, the more so as leucine and its leucine acid $C_6 H_{10} OO$, as well as valeric acid $C_5 H_{10} OO$ and caproic acid $C_6 H_{12} OO$ all together are related to tannic acid $C_{14} H_{10} O_9$, in a form which has remained unknown until now, I now aim to clarify why we must consider tannic acid or tannin as the original substance of certain insect-producing essential oils.

TANNIN

Tannic acid $3(C_{14} H_{10} O_9)$

I had long cherished the assumption that the reduction of tannin was related to the presence of such essential oils which we find *collectively* with tannin in roots, bark, leaves and fruit but it was not easy to find a foundation for this because, in addition to tannin and oil substance, nearly always sugar, dextrin gum and starch also appear. It therefore seemed more logical to consider sugar with the specific additive trend of the hydrocarbons as the source out of which the essential oils accumulate in drops in special oil glands.

Only after the study of the Roman camomile oil did I find occasion to thoroughly examine tannin as a possible source of many essential oils and this the more persistently after *I had seen how in the summer heat fusel oil (amyl alcohol) originated out of a solution of tannin in gypsum water or in a solution*

of calcium benzoate. From this discovery I have combined these facts:

1) A chemical compound of *fusel oil* and the sugar fragment angelica acid is present in Roman camomile oil;
2) The flowers of Roman camomile contain an *abundance of tannin;*
3) Unripe fruit (apples, pears, cherries, strawberries, pinapple, etc.) also contain *tannin,* whereas in ripened condition they show chemical compounds of fusel oil with sugar fragments (malic acid, acetic acid, benzoic acid, etc.) as volatile fragrant substances.

My attention was more and more actively drawn to the fact that a large number of plant parts showed volatile oil and tannin *together* in a characteristic way. I will give only a few well-known examples:

Acorus calamus root, bitter orange peel, ginger root, cinnamon bark, *Geum urbanum,* sagebrush root *(Artemisia),* angelica root, polypody root *(Polypodium), Pyrethrum,* fern root *(Aspidium filix mas), Iris florentina* root, dandelion root, sassafras and cascarilla. All of these substances contain tannin, which can be proved by the characteristic ink reaction when salts of iron oxide are mixed with their infusion. The alcoholic extracts of the green leaves as well as of the needles of conifers that are provided with essential oils also show the ink reaction with solutions of iron oxide; e. g., peppermint, sage, thyme, caraway, rue, fern, young juniper shoots and berries and pine needles.

Flesh-colored rose petals also contain considerable *tannin.* Rose honey made from them has a healing effect on blisters in the mouth, due to its tannin content coagulating the catarrhal secretion which is *equivalent to* decomposed and therefore infectious ammoniacal protein.

In view of so much tannin *together* with essential oils in plants from which, according to my experience as a pharmacist, butterflies and spiders can develop and, astonishingly, *from the tannin of the gallnut, gall flies can originate,* and in spite of the physiological chemical fact that *tannin makes animal protein lifeless,* it became clear to me that in the tannin substance which can transform partly into sugar, partly into oil, I held the key in my hands to solve the puzzle of the reason for the epidemic appearance of certain forest and field insect pests.

Since I have the natural desire for the world to benefit from my knowledge so that correct measures will be taken instead of erroneous measures to combat the bark weevil, vine louse, etc., I feel the obligation to set forth the so far unknown chemical fact:

Within the tannic acid molecule C_{14} H_{10} O_9, the 5 hydrocarbons CHH are contained intact as shown in the atomic structure of the tannin figure, but under the influence of heat and moisture they wander to one another because by absorption of one water molecule they create amyl alcohol or fusel oil. As to the *fusel oil* thus created, it continues to *pair itself* and the pairs seem to be able to pair *again* so that not just two, but four molecules fusel oil can be polarized. (See drawings in the *Table of Figures.)*

However, such paired unions are subjected to the oxidizing influence of the air so that they lose a certain number of hydrogen pairs by oxidation through water separation and, after that, it is difficult to recognize them as fusel oils. In the fir needle, in oranges and lemons, in the common caraway seed, in Roman caraway, in thyme, wormwood and pepermint, we only find the oxidized *remains* of paired fusel oil. We are then no longer dealing with C_5 H_{10}, HHO or with C_{10} H_{20}, HHO, but instead with mixtures of various oxidation substances, for example:

In pepermint: menthol C_{10} H_{20}, O and menthene C_{10} H_{18}
In Borneo camphor: borneol C_{10} H_{18} O and borneen C_{10} H_{16}
In wormwood oil: oil of absinthe $C_{10}H_{16}O$
In thyme oil: thymen C_{10} H_{16} and thymol C_{10} H_{14} (HHO)
In Roman caraway oil *(Cuminum cyminum):* cymol C_{10} H_{14} and cuminol C_{10} H_{12} O
In caraway oil (*Carum carvi):* carvol C_{10} H_{14} O, carven C_{10} H_{16} and carvacrol C_{10} H_{14}

The close relationship beween these products is created because cymol $C_{10}H_{14}$ is not only dissolved in Roman caraway oil but also in many other essential oils and because it has been drawn out of camphor, thymol, carvacrol and absinthe oil.

Regarding the *variation* of certain essential oils which are identical in their number of elements at decomposition, as for instance, turpentine and lemon oil $C_{10}H_{16}$, or cymol and thymol $C_{10}H_{14}$, their characteristic depends on *the location* at which the hydrogen pairs were lost (See figures).

Now when in Richter's Organic Chemistry (Bonn 1882) I find substances 100 or 200 pages apart which belong together as members of one family *(cymol* page 514, *thymol* page 600, *absinthe oil* page 812, the one as *methylpropyl benzol,* the other as *methylpropylphenol* and the third as *turpentine derivate),* I am deeply grieved at such a division of the subject. This costs the students a great deal of valuable time and only results in confusion instead of acquiring knowledge. This method is the reason why our chemists choose only a small part of chemistry for their professional study, as the general connection and relationship of chemical elements is not clear to them. Lack of knowledge as such is not a shame, but shameful is the presumption of persons with a biased and limited power of judgment who claim to be experts, however much they contradict one another.

Nutrition chemists set the rules to judge which wines should be considered as natural wine and which are imitations; up to what degree butter may be rancid without being confiscated for being injurious; how much glycerin, alcohol, extract and ash substance may be contained in pure beer or apple wine, and the court frequently passes judgment on the basis of the chemists' opinion. As an example, a vinegar manufacturer was convicted for adulteration because the chemist in shortsighted delusion (I cannot call this anything but that) advised that the examined vinegar contained hydrochloric acid because by adding silver nitrate, chloride of silver precipitated. Therefore, the vinegar was considered to be adulterated. Actually, the manufacturer had adden ½ percent common salt to his vinegar in order to make it more durable and to avoid the creation of vinegar eelets. For this addition the manufacturer should have earned a premium but not a sentence. After many blunders the chemists then decide to acknowledge certain limits of percentage components as normal so that the chemist of the accused and the court official do not contradict one another too ridiculously. Such conventions almost appear to me as conspiracies of the bread-seeking chemists against their bread-winning fellowmen.

The worst management at present takes place in the field of agricultural chemistry. The farmers have been told for so long by the chemists that they will be ruined without saltpeter, Stassfurter kainite and artificial fertilizer that they give their last penny for these things to the manufacturers of nitrogen fertilizer. They, in turn, pay a salary to special chemists for this purpose. Fortunately, however, the knowledge that nitrogen overloaded *food* is the main cause of our progressive degeneration is becoming more and more widespread.

For a better evaluation of certain essential oils as derivatives of the fusel oil, which, in turn, has originated from *tannin,* there are several more facts to be explained in the interest of my subject.

We have mentioned that the essential oil of Roman camomile *(Anthemis nobilis)* contains a compound of fusel oil with angelic acid. (See Roman camomile oil figure.) Similar to malic acid and valeric acid, angelic acid can justifiably be considered a fragment of *sugar;* however, it should be observed that certain substances can originate in *various* ways. For instance, *acetic acid* can be split off from cellulose by dry distillation (wood vinegar) but it can also originate by oxidation of fat or of alcohol. The same applies to *valeric acid.* This can separate from cellulose by the effect of the sun but it can also originate by oxidation of fusel oil, an experiment which, if I am not mistaken, was first made by Justus von Liebig in Giessen, Germany. In the

latter case, the law of symmetry requires the oxidation by 2 oxygen to take place in the central hydrocarbon and as equivalent the opposite water molecule is split off by a double-edge fracture. (See drawing next to fusel oil.)

Since we are aware that in many cases nature reaches its goal by various routes, it could be that the angelic acid of Roman camomile oil also originates from fusel oil while the middle hydrocarbon of the latter is not only oxidized by 2 oxygen into formic acid but by 3 oxygen into carbon dioxide and water. In this case the Roman camomile oil would be a union of 2 molecules fusel oil of which one has been oxidized; consequently, it is *a pure tannin product.*

Such a connection is also indicated by the view that angelic acid can be obtained from the angelic root as well as from the master wort *(Peucedanum ostruthium).* Both roots are rich in essential oil and both contain *tannin.* They are so inclined to bear worms that pharmacists have difficulty to find a wormless angelica root. Furthermore, in addition to angelic acid, angelica root also contains valeric acid — this oxidation product of fusel oil!

Then there is the very typical character of the essential oils which have been distilled out of valeric root. Valeric oil, in freshly distilled condition, contains valeric acid, borneen, borneol and valerol. But *borneen* and *borneol* (see figures) are paired fusel oils which have lost one part hydrogen by oxidation. The case is different in valerol $C_6 H_{10} O$. This teaches us that a sixth hydrocarbon from another tannin molecule has wandered to the 5 hydrocarbons of a tannin molecule. This sixth hydrocarbon has oxidized with 2 oxygen, during which process the water molecule of the fusel oil $C_5 H_{10}$, HHO as well as 1 water molecule of the sixth hydrocarbon, which had oxidized into formic acid CHHOO (as equivalent of the chemical union with 2 oxygen), separated.

If oxidation of the latter kind takes place not under the influence of the sun heat but slowly in storage vessels in pharmacies, no water separation follows as second equivalent. Instead, the slowness of the process causes an unnoticeable *increase in heat* analogous to both stages of alcohol oxidation into aldehyde and acetic acid. (The aldehyde oxidation takes place by separation of water, whereas the addition of the second oxygen atom during the formation of acetic acid takes place with *heating.)*

Such slowly oxidizing valeric oil does not contain valerol $C_6 H_{10} O$, but caproic acid $C_6 H_{12} OO$. (See figures.) Caproic acid is a substance which smells of old cheese and this smell is characteristic of both the cut-up valerian roots and old valeric oil; the oil distilled out of fresh roots, however, has no such odor. On account of the lack of the characteristic smell of old cheese this circumstance has often lead to controversies between pharmacists and manufacturers of essential oils. The same applies to fresh melissa balm and peppermint oil.

Something more about caproic acid! This is also contained in the *tannin-holding* and *oily* glands of the bracts of *hop cones* if these are kept for a longer time. Such hop is useless because of its bad smell of old cheese.

Further, the arnica root contains enough *tannin* as well as caproic and caprinic acid; the latter, $C_{10} H_{20} OO$, is a fusel oil which oxidizes into valeric acid and absorbs 5 hydrocarbons of a second fusel oil. Thus, arnica root in spite of being stored in closed tin cans easily produces moths and gives another proof of the *wandering of hydrocarbons.*

The same applies to grapewine. During fermentation the tannin-containing grapes produce compounds of fusel oil with hydrocarbons in manifold variations, e. g., oenanth alcohol, an amyl alcohol (fusel oil) together with 2 hydrocarbons: $C_5 H_{10}$, HHO + $C_2 H_4$. It is remarkable that the fusel oil by uniting with other hydrocarbons takes on agreeable odors, from which originate the fragrant fusel oil compounds in pineapple, strawberry, apple, grapes and other kinds of fruit. In the same way the fine, intoxicating forest air in autumn owes its existence to certain fusel oil compounds which originate from the tannin of the fallen oak leaves. Also of particular lovely fragrancy is the paired and

oxidized fusel oil of the tannin-holding leaves, flowers and fruit peel of the orange species (See drawing).

In all these cases we are dealing with the wandering of the *five hydrocarbons* of the tannin to one another.

Another proof of the wandering of the hydrocarbons is the spontaneous combustion of haystacks. When the hay is stacked too high in badly ventilated barns, the liberated heat is not carried off sufficiently. The rising temperature starts self-ignition and the hay along with the barn, and sometimes the cattle, burns down. The same process happens when oily rags left in a heap in a warm corner of a mechanic's or painter's workshop start self-combustion, the same as fires in coal bunkers of ships. To demonstrate this:

Take some woolen rags that have been used for months to clean machinery with oil, throw them all in a heap and let them remain neglected close to a wooden wall. You can be quite certain that a fire will break out sooner or later since the oil in the rags undergoes chemical changes which produce heat and end in combustion. I might even give the exact amounts needed for such a recipe:

"Take 20 lbs. of sheep's wool, 1 lb. of tallow and 6 lbs. of linseed oil. Pound together well, tie up the whole with strings and leave it alone. Return to it after six days. If by that time the bundle has not yet been reduced to charcoal, it will certainly catch fire as soon as you open the door and admit air to it."

In this way I wish to show that impulse from without is not the only method of starting the process of combustion or of decomposition; on the contrary, it is exceptional. Much more frequently, in fact almost always, *internal* decomposition is the cause of so-called "infectious diseases."

For the rest, the number of possibilities of oxidation of paired or fourfold grouped fusel oil along with separation of hydrogen is rather great. I have limited my drawing to but a few characteristic figures to illustrate the isomerics of the essential oils of the chemical formula $C_{10}H_{16}$ and $C_{10}H_{14}$. Juniper sabina oil and turpentine oil (as shown in the figures) originate from oil-rich needles which create spiders and it is not difficult to recognize the 8 hydrogen atoms in the center for the provision of the 8 movable feet of the spider. Where only 6 hydrogen are located in the center, the crystallization involves the specific protein for 6-legged insects, in accordance with the carbon at the periphery for the provision of the diamond-brilliant wings of many butterflies. In the same manner the 4 oxidized sides of the stearin fat molecule appear as a characteristic for the limbs of *mammals*.

Naturally, hippopotami were *not* created out of tannin. However, for insects the possibility of a double creation exists, i. e., out of both plant and animal substances, remembering that *caproic acid* as an oxidized sixfold hydrocarbon can originate from plant as well as animal substance. For instance, we have seen that it can appear in the *arnica root,* in *valerian root* and in *hops*. On the other hand it is also found as a derivative product in stearin fat together with caprilic and caprinic acid in the sweat products of the he-goat (caper) and many human beings, also in butterfat and in old cheese. All these substances, except butter and valerian oil can bear insects. The arnica root, root lice; old hops, moths; the he-goat, lice; human beings, itch mites; old cheese, maggots. It depends upon what ashes and salt parts attach to the fatty acid.

That maggots only originate in old cheese and not in *fresh* cheese is due to the hydrocarbons of the protein bodies grouping only *in pairs,* while the protein bodies themselves are founded on sugar (dilactid). Inasmuch as the protein bodies wander together under the favorable influence of a temperature not much higher than that of the air — as for example what takes place in the liver — it requires a certain amount of time for the hydrocarbons to move towards one another and, in combination with phosphate salts and ammonia, to assemble sufficient nerve fat for a fat maggot.

It now only remains for me to point to the remarkable *tension power* which is characteristic of all the essential oils derived from amylalcohol. On this ac-

count they play one of the most important roles in medicine and, even before chemistry was considered, were held in worthy esteem by the people. As a result of practical observations they drank hot wormwood or peppermint tea or used camphor as a remedy (absinthol, menthol, borneol) for diarrhea; wild thyme tea *(Thymus Serpyllum,* thymol) as a curative for disorders of the genital organs; valerian tea (valerol) for various kinds of cramps; Spanish hop oil for toothache.

The fact that in fusel oil and its descendants we are dealing with *nerve excitants* is not only clear from the intoxicating consequence of the fusel oil itself, but also from the similar effect of Roman camomile oil and the juniper sabina oil which is related to turpentine oil. The effect of these oils is so intense that relatively *small* amounts cause abortions to take place.

Essential oils derived from fusel oil can be fatal. Here is such a case where caraway oil (carven C_{10} H_{16}, carvol C_{10} H_{14} O, carvacrol C_{10} H_{14}) caused death. In a small town pharmacy a parcel was received from a drug firm. The assistants opened it and placed the contents on the counter in order to verify the invoice. In the meantime a farmer had brought in a prescription to be filled with which the pharmacist was occupied. The medicine was wrapped up and handed to the farmer, but while the pharmacist made a record of the account behind the prescription table, instead of taking the prescribed medicine the farmer took a bottle containing 50 grams of caraway oil *(Oleum carvi),* which was still wrapped up and belonged to the first-mentioned parcel and went home with this. Only later it was discovered that the farmer had left his medicine behind and that the billed caraway oil was missing from the parcel although they did not suspect that the farmer had taken it instead of the medicine. The following day the matter was cleared up. The farmer unfortunately had given his sick wife a tablespoonful of the caraway oil and she immediately lost her ability to speak. She could produce only inarticulate sounds while the burning pains made her throw herself backward and forward like a mad woman, and after two hours she was dead.

The excitant effects of wormwood oil (absinthol = C_{10} H_{16} O) are also known by sad stories. The aperitif absinthe, a green alcoholic liquor containing oils of wormwood (vermouth) flavored with aromatic herbs causes nervous derangement and insanity after continued use, so that its manufacture and sale were prohibited in France and Switzerland from the beginning of the twentieth century.

An elephant in a travelling menagerie freed himself one night and took a stroll in the empty streets of Geneva, Switzerland, where the use of absinthe was at that time very popular. Attracted by the smell of absinthe, the elephant broke into one of the barrooms, opened an absinthe bottle and drank the entire contents. Having the taste, he broke into one or two other barrooms and repeated the performance. He then became so intoxicated that he galloped trumpeting through the streets and woke up the sleeping inhabitants. The animal became wild and had to be shot.

The distance from elephants to gnats seems somewhat far, but the absinthe oil forms a bridge between the two if we return its 4 lost hydrogen and add 1 oxygen. We then again have caprinic acid C_{10} H_{20} OO, a fusel oil pair no longer in fierce vibration but partly calmed by 2 oxygen.

With such a vigorous effect of the fusel oil derivatives on the nerve substance, as has been demonstrated above in two examples, it is understandable that an insect of such slight weight as a gnat requires only a very small quantity of caprinic acid as a basis for its nerve substance.

A withered oak leaf floating on the water already has sufficient tannin to provide fusel oil and calcium phosphate as well as plant protein in order to produce the life germ of a gnat.

From the original creation of the oak leaf gallfly it becomes apparent that it is indeed specifically the *tannin* which *provides* the *germ of life* by its assembling of 5 hydrocarbons which pair up

and oxidize, provided ammonia sugar substance (vegetable protein) and calcium phosphate are present.

Why the sting of the gallfly does *not* create the oak leaf gall is explained in the next section.

HOW PLANT SAP TRANSFORMS INTO INSECTS, WORMS AND PARASITES

Not only for the art of healing but also for the benefit of agriculture and forestry, cattle raising, trade, industry and science, in fact for the whole public welfare, more light on this subject is of deep significance. I consider it as a special divine grace to have been favored with the gift of interpreting this subject. Because, indeed, how conceited this may sound at first, I am the only one of all scientists living today who on this special subject see with the same eyes as Aristotle did 2400 years ago. I say expressly "scientists," because the common people never have lost the natural way to see.

The metamorphosis of the *ammonium phosphate* of the plant protein into *insects* and *fungi* is a very natural process, because the individual members of the whole atom group change their place, thanks to the *growing impulse of all phosphates* (compounds of phosphoric acid with basic earths, alkalies and ammonium).

Herein lies the immense ability of the protein substance to form and the miraculous variety of the shape and form of all organisms. All organic ammonium *phosphate* is in constant motion, regrouping, forming anew and modifying in form, it is and shows that independent *life* is changeable like Proteus and therefore rightfully bears the name "protein" for all organic protoplasm. Yet this astonishing ability of the protein phosphate to form must meet its *limit,* however, without the use of poison.

Above all else, it finds its suitable limitation through the use of the only natural fertilizer made of *primeval rocks* — granite, gneiss, porphyry, basalt — which supply the soil with all minerals necessary for wholesome plant growth, be it by a direct spreading of the fertilizer on the fields or in the cattle barn or by spreading it in layers onto compost of plant remains, garbage, city waste, earth mixed with liquid manure or manure in order to accelerate the rotting process.

From thrushes which have been shot and are left lying around for a few days, out of the ears of the boar torn by hounds, out of the blood of slaughtered animals which runs on the soil, or out of old cheese, maggots abound. Again, the outer and inner mucous membrane of man and animals develops independent organism because the nerve substance ending in the mucous membrane consists of ammonium-phosphate hydrocarbons. Thus the inner mucous membrane develops tapeworms in adults, thread worms in children. Also the head lice of children and the itching mites of older people and animals, in fact, all worms and parasites have the same origin. The Roman emporer Sulla and the Jewish King Herod both died of lice disease. It deals without exception with the chemical atom-regrouping of the phosphate-holding nerve substance lecithin with accumulation of further material.

Ammonium phosphate and fat make up lecithin which is present in all plants. Not only all fruits, such as cereals, peas, beans, lentils, linseed, hempseed, poppy seed, almonds, etc., contain lecithin but also the roots, barks, stalks, branches and leaves are provided with it, in particular all flowers and thus their nectar. This explains unmistakably why during the blooming time of the plants the air is filled with gnats, beetles and other insects, which until then did not exist because their life is very short due to their rapid creation. Gnats, flies and beetles do not survive the icy winter.

The Dandelion. That the transformation of the plant protein-phosphate into

animal substance indisputably takes place without the help of a mother animal, everyone can observe from May to September. In May the phosphate-holding spring plant, the dandelion, blooms everywhere, bearing various local names. At night we still find a closed bud, also early the next morning; but towards eight o'clock the flower bud opens under the influence of the sun. When such a bloom is broken off and is shaken against the open hand, innumerable tiny snake-like maggots tumble out which the phosphate-holding flower nectar has created because a mother animal could not slip into the closed bud in order to deposit an egg into each individual fruit petal. The all-animating *sun* is the genuine creator. As under the sun's influence man-high grain stalks grow from March to June, so the minute amount of plant protein is accumulated for the necessary insect protoplasm (egg substance) in such a short space as if by magic. Already by noon out of the minute maggots tiny bugs have developed which drank themselves big and satiated from the flower nectar, taking the place of the mother. Of such flower nectar the plant dispenses more than enough, because without interruption it renews the streams of milk sap in the flower stalks. Even if you cut the stalk into 20 pieces the milk sap phosphate flows out of each piece above and below. If at noon we shake a calix against the open hand, then smaller and larger maggots as well as little bugs tumble out and run on the warm hand busily back and forth. Not a minute passes before their tender skin wings have grown and the little bugs flutter away to be used for new protoplasm by the swallows, finches and other birds.

If you are astonished at the speed with which within six hours an insect creation takes place, considering that it deals with such a minute amount serving for its creation, how much more miraculous is the rapid clustering together of the carbonate of hydrocarbons with water and minerals which takes place within a month to grow the many-headed, extensively-branched root mass of dandelion representing a considerable weight. This is demonstrated in the young shoots of raspberry and elder bushes in the form of foliage as well as twig growth. During the damp month of May under the influence of the electric sunlight the accumulation of carbon dioxide, water and hydrocarbon takes place with such magic rapidity that nothing else remains for us but to fold our hands devoutly in awe of God's almighty management.

From May to September there is not a single bloom from which the phosphate nectar does not produce *gnats, beetles, spiders, worms and other insects* to the joy of chaffinches, swallows and blackbirds, while the phosphate-containing *root saps produce earth worms and eel worms*. Transformation above and below the soil — life above and below. The bumble bee is produced from red clover and in the same way as she is raised by the red clover nectar so she feeds herself on it until she is caught by the finches.

The characteristic variety of the little animals depends partly on the different proportions of specific mineral substances for the individual plant protoplasm and partly on the peculiar scent substances of the flowers.

No organic material remains unchanged. The content of starch flour diminshes in potatoes, the sugar content in beets, and in wine the alcohol changes into vinegar when it comes into contact with air. Fungus grows on cider or grape juice, plums are covered with mold fungus. Furs and woollen materials produce moths. The worms in the brains of sheep confined to hot stables, the liver worms of overheated hounds and the hunted forest animals, the intestinal worms of people — these are all produced through the warmth of the blood by phosphate-containing nerve substance when insufficient quantities of sulfur and calcium are supplied to the blood by nutrition.

All flies die in winter; but as soon as it becomes warm they are again produced out of horse manure as well as out of human excrement. This will not surprise anyone who knows that every dunghill on farms produces an unlimited quantity of worms and beetles to the joy of poultry. Like the flowers, like the fruits. Every fruit tree which is manured by

phosphate-containing stable manure and liquid manure, and is thus overnourished with nitrogen, gives maggoty fruit while the imported fruit which has grown on virgin soil and which has been spared the stable and liquid manure is free of maggots.

The Vine Louse *(Phylloxera.)* In accordance with these facts, it can be understood why the vine louse appeared so intensively at first: because certain professors of agriculture recommended that the vineyards be covered with stable manure and/or nitrogen fertilizer in order to obtain better results. (He who wants too much gets nothing at all.) The vine louse was originally produced by the phosphate-containing root sap of the vine, which is a legitimate result of the transformation ability of the phosphate-containing plant protein and will never cease. Like the dandelion produces beetles and at the same time also unfailingly ripens its seeds, like the raspberry bears maggots and gnats which fly away and nevertheless ripens its juicy fruits, so the vine root would not have been affected in its fruit-bearing by the vine louse produced from the abundance of phosphate, as long as the soil was not exhausted of its potassium, calcium and sulfur and as a substitute was not supplied with phosphate-containing ammonia manure by the fertilizer experts. Now, when we see these chemical-blind people rage with fire against the vineyards and destroy innumerable valuable crops while they continue to recommend stable manure and nitrogen for the fertilization of the vineyards which creates ever more vermin, should then old Noah — to whom God gave sweet wine *without* stable manure — not again build an ark because he foresees a *new deluge* on account of the *errors of sinful, money-minded humanity of the twentieth century?*

The *root louse* of the vines (phylloxera) is a natural transformation product of the phosphate-containing material of the root sap and is produced on those spots where the soil of the vineyard has been depleted of its magnesia through many years of cultivation. Magnesia has a petrifying effect through the formation of ammonia-magnesium phosphate which prevents the creation of boneless root lice. They do not occur in districts where the rocky earth is still rich in magnesium particles. It is therefore of no use to free the vineyards of vine lice by fire and then to plant new young vines. It would be much better to spread ground rock over the soil of the vineyard so as to rejuvenate it.

The entire continent cannot show enough appreciation to our agriculture professors for the excessive abundance of worms which swarm to the surface everywhere since their recommendation of fertilizer with potassium, phosphate and nitrogen. And as far as our excessive protein nutrition is concerned, here chemical knowledge also applies: *The more nitrogen our food contains, the more ammonia outweighs the mineral substances and as a result the blood gelatine more easily disintegrates.*

Leather Worms and Moths. It is, for example, a great concern to the officers who are responsible for the soldiers' outfits when *leather worms* appear in leather equipment (straps, knapsacks and saddles), which has had good care for years. This can be explained as follows: The skin nerves end in the gelatine-producing leather skin of the animal hide like small button-shaped feelers. After skinning the animal these feelers remain behind in the leather skin together with the other torn nerve ends and their atoms which stay alive. Gradually, they transform into worms if they are not disturbed in the process by movement in the use of these leather articles. The regrouping of the caterpillar substance into the new form of a butterfly follows in the same manner; therefore, the *moths* coming out of the leather of fur articles and sheep's wool are nothing but small butterflies.

Clothes and fur moths also fall under this heading. These by no means, as so many believe, enter *into* the woollen and fur materials but *come out* of them. The animal hair *itself* consists of leucine and the ashes of the hair contain calcium phosphate. This constitutes all conditions necessary to produce parasites provided the grouping of the hydrocarbons into

nerve tallow is not disturbed by shocks (such as *shaking* of the articles).

Lice. During childhood the leucine scales on our scalp are subject to a lively detachment and renewal, partly by splitting and scent development. Since at the same time the nerve points which end in the skin are burnt to carbon dioxide and ammonium phosphate by the oxygen of the capillaries, the head sweat of such children who are not washed frequently, causes the original growth of head lice. Adults, particularly the majority of soldiers in wartime, have lice due to the lack of opportunity to wash.

Blackheads (comedones) during the pubescent years of both sexes are basically nothing else but tallow collections produced from leucine scales, which cover the openings for the hair. When, however, such an accumulation of tallow fat plus leucine exceeds a certain quantity and, together with the calcium phosphate of the face bones, transforms into ammonium phosphate, then a lively mite *(Demodex follicolorum)* is suddenly created out of hitherto lifeless material. This mite becomes noticeable through itching and is killed by instinctive scratching. In this connection the circumstance is of interest that such blackheads like to appear during pubescent years, meaning therefore at the time when fulness of sap prevails and causes the beard to germinate. During marriage they usually disappear.

On dogs which are not washed or combed one sees dozens and hundreds of these parasites on one hair and when one does not wash such a dog with alkali soap, it will die.

The Corn Borer. No less interesting is the *corn borer* against which every year remedies are set forth in innumerable trade periodicals. It originates out of nerve fat (lecithin) which is contained in every cereal grain when cereals are stored. Hence, no disturbance takes place. The *heat* generated by the stored grain can only be checked by frequent shoveling and supplying cool air. If these precautions are not taken this heat promotes the grouping together of the atoms into animal substance which therefore produces innumerable quantities of *insects in summer out of leaves, flowers, barks and roots,* even out of the dry material of *Herbaria* (herb thief) and chemists' chests.

The Flour Mite. A cereal grain is a giant in relation to the flour powder and therefore out of the latter only a tiny *mite* appears. No baker is able in the heat of summer to avoid the formation of mites out of flour; they are simply baked with the product. Ask any baker in confidence after he has retired — no baker will answer you while he is still working — but this is what happens. Therefore, if according to the legal judgment of a food chemist who finds mites in flour and who has no knowledge of the assembling of atoms into new forms, a baker is accused and fined, I consider this an injustice; then *all* bakers would have to be fined along with the food chemists and we all would have to bake our own bread on account of the bakers' strike. The mites are not poisonous, particulary not after they have also been baked; a small quantity of meat substance has only been added to the baked product.

The Tapeworm. The renewal and constant separation of the leucine which covers the *internal* organs also forms a favorable condition for the production of parasites if, through lack of physical movement, the secreted material remains on the spot of production instead of being used up in the normal manner. In such a case the hair crown of the nerve threads which end in the digestive channel, in the central cavities of the brain, in the liver cells, etc., form the natural crystallization points to which the dispensable secretion material clings. This is comparable to the rockweed substance which is produced out of the carbonate of calcium rock and spins threads over the water-covered earth under the rays of the sun.

According to this the hack crown, with which a tapeworm is attached to the epithelium threads of the mucous substance of the intestinal nerves, appears to be a direct appurtenance to the intestinal ends. Indole and bile substance have attached themselves to these ends in exactly the same way as the chains

of the weed threads are attached to fresh water rocks and the seaweed to the sea rocks. Consequently, the detachment of the hack crown, which is *identical* to the nerve ends, is the main point of a tapeworm cure and this can be achieved with the aid of certain oils (castor oil and fern oil) which have a chemically dissolving effect on the fine nerve threads. When once the detachment has taken place in this manner there can be no question of a new attachment because the hack crown and the entire so-called worm do not form an individually independent body. The tapeworm is to be considered as an exuberant, metamorphosed intestinal gland like the hair mite resembles a metamorphosed tallow gland and the ergot fungus *(Claviceps purpurea)* a metamorphosed grain kernel.

The Liver Leech. This originates under the same conditions in sheep, dogs and man as a result of inhaling foul stable and room air whose carbon dioxide has a paralyzing and overheating effect. For instance, on account of the cold winds which blow almost constantly in Iceland the windows and stable doors cannot be opened as regularly as would be beneficial to health. This then causes the epidemic sicknesses with which Iceland is periodically afflicted whenever the population which is concentrated in a few locations reaches a certain level entailing a greater clustering together in this food-needy country.

The Potato Beetle. Root and fruit, leaves and stalk, every part of the plant that contains phosphatic protein, produces animal life. Also all leaf lice and the Colorado beetle originate from the contents of plant cells. The plant cell is the egg shell, the cell contains the plant protein. Young elder shoots before blooming exude a sap that transforms into a ring of black leaf lice as long as a finger, which are still so firmly connected to the shoot with the sweated honey juice that they cannot be pulled off without being damaged.

The Egg. The ability of the phosphatic lecithin to transform easily into all kinds of insects and parasites is explained by the shortage of calcium, iron, sulfur and sodium in the plant saps and the blood. We learn from the ash constituents of plants how a certain quantity of sulfuric acid, silica and hydrochloric acid form a tensional counterbalance to phosphate. This represents a true repetition of the counter tension existing in a *hen's egg* between the yolk and the egg white (albumen).

We have seen that the albumen of the hen's egg contains the same earthy constituents as the yolk, that is, potassium phosphate, sodium, calcium, magnesia and the iron oxide that exists everywhere; in addition, hydrochloric acid and sulfuric acid compounds which are completely absent in the yolk. As a result of this proportion, the yolk gradually separates through the segregation and accumulation of the phosphate compounds out of the albumen, but mutual connections exist between the two complementary oppositions, thus forming a complete unit.

Now, when we find the phosphate in fruits and seeds accumulated in the same manner, but on the other hand find the potassium, sodium, calcium and magnesia like the albumen united with sugar substance in the wood substance (cellulose) of the stalk and leaves, are not the stalk and leaves then to be regarded as extended albumen and the fruits as egg flowers or yolk?

When this relationship is repeated between bone structure and brain, between nerve threads and muscles, is then not every muscle with the salty contents of its blood vessels, its oily nerve substance and the phosphate-containing lymphatic vessels of the conjunctive tissues by which it is enclosed, to be regarded as a transformed egg in which a constant tension and a struggle takes place between sulfate and phosphate minerals?

Such a regular grouping together of *phosphate* in combination with oily substance (nerve fat) as is equally perceptible in a typical way in the egg yolk and the egg-shaped oily hemp seed, *cannot* take place without the *counter tension* of the sulfate compounds. The phosphorus-sulfur-cyanogen gas of the earth's atmosphere in primeval times forms the basis of a living principle for the entire

physical universe. Without sulfur as counterbalance the phosphates disperse in disorder in all arbitrary directions, as is shown by the wood fungus *(Polyporus destructor)* which spreads itself in a fan-like manner and of which the ash constituents have proven to contain almost solely potassium phosphate. To repeat briefly: *Phosphate* provides mainly the actual *motive power* for all growth, i. e., the grouping together of organic substances, while *sulfate* has a restraining effect, i. e., it regulates an unbridled growth of ammonium phosphate.

Calcium and magnesia earths have the same restraining and regulating effect upon the ammonia of the ammonium phosphates.

Every farmer knows from experience that an excessive amount of liquid manure on the fields produces the *"poisonous manure flora"* with a great deal of yellow crowfoot, and that the sap of the fruit trees grown on such land transforms into lichen, moss and mistletoe and that this hampers the growth of the twigs ,leaves and fruits. Like the flowers, so also the fruits. Every fruit tree which is overnourished with phosphatic liquid manure or nitrogen fertilizer bears maggoty fruits, while the fruits which are grown on primeval rock and which have been spared the artificial fertilizer are free of maggots.

In the course of time it will become clear to every farmer that notwithstanding the application of expensive insecticides and fungicides the insect plague has a tendency to increase so these preventives only represent a waste of money. His observations and common sense will also tell him that if the *impoverished* soil is to again produce healthy growth, and thus *biological* nutritive plants which promote good health, it will *have to be supplied* with mineral substances in the form of *primeval ground rock,* calcium marl, gypsum, basalt, clay slate and wood ash which are being removed with each crop. This is the simplest and most natural way to effect *the miracle of regeneration of man, animal, plant and soil.*

"Nothing remains in the same form." The cell arises from the atoms, and since atoms move and are *alive* the cells are certainly their product. The terms "motion" and "life" have the same meaning. This confronts us directly with the importance of clearly recognizing the term "life." "To move oneself" indicates a *change of location* and because life originates from the moving atoms, which in conformity with their spiritual origin are definitely not capable of remaining in repose, it is clear that "life" coincides with *"incessant changes of location of the atoms."*

Organic substance is never lifeless. The phosphate-holding nitrogen-hydrocarbon groups are subject to constant motion and conversion. Even in baking flour which usually is not considered as being alive there is a continual regrouping of the atoms, so that from three-year-old flour alkaloids of the character of corpse poison (ptomaine) can be extracted by means of ether, which *cannot be done* in fresh flour. With such old flour mixed with water to a dough, sparrows can be poisoned in great numbers.

> "Nothing remains in the same form.
> Being lover of variety,
> Nature continually creates new
> forms out of others.
> Change and exchange lies but in the form. To *originate* and to *become* only mean to begin to be different than before; and to *pass away,* not to remain the same as before."
> — Ovid's *Metamorphoses*

FALSE AND TRUE PROPHETS

To err is not disgraceful. Yet if somebody is in deep error and many put faith in what he says because he holds a privileged place, millions of credulous people can be led an a false path. In such a case it is one's duty to pin down such a fundamental error, but without wanting to offend the erring person. This is my viewpoint in respect to the various false theories which I as physiological chemist

am herewith trying to correct and, at the same time, to expose the true chemical significance.

After the French chemist Berthelot was elected Minister of the Exterior at the end of the last century, he made the following claim in one of his speeches about the future significance of chemistry: "Chemistry has accomplished great things during the last decade but it is just the beginning, soon many more important problems will be solved. *Around the year 2000 there will be no more agriculture and no more farmers,* then chemistry will have eliminated the present soil cultivation. There will be no more coal mines, consequently no more miners' strikes because the fuel will have been replaced by chemical and physical processes."

According to this utterance Berthelot too belongs to the thousands of chemists who have not grasped the fact that all plant growth is caused by the simple chemical process created by the sunlight, to make the *combustion product water combustible again.* And this is achieved by means of the masterwork of uniting the hydrogen gas $\overset{H}{H}$ contained in water $\overset{H}{H}O$ with the carbon C contained in the combustion product carbon dioxide $C\overset{O}{O}$ thus forming the combustible hydrocarbon $\overset{H}{H}C$, as made clear in the figures shown at the beginning of this book.

To disprove Berthelot's error is very simple. Under *Oil Substance,* we talked of linseed oil, poppyseed oil, mustard oil, almond oil, olive oil and sesame oil, and all other plant oils including the carnaubawax I did not even mention, neither the turpentine oil produced by the conifers in such enormous amounts, which amongst all the hydrocarbons takes first place.

A merchant of Vienna wrote me that within one week he sold 200 railway carloads of linseed oil, which corresponds to about 600 railway carloads of linseed which, by the way, came from East India. Now imagine all the linseed that is grown annually in Central Europe, Spain, Russia, to which must be added that coming from America and East India. I want to be modest and estimate the amount of linseed grown each year on the whole earth to be a thousandfold of the 3000 tons sold by the intermediary of my friend. It is the electrical power of the sun that creates all this linseed and brings it to ripeness at the right time, yet the sun claims not one penny for its wages. On the other hand, one can imagine, since one and the same chemist cannot, like the sun, be ever present at all places on earth:

1) how many chemists would have to be paid salaries,
2) how many costly laboratories would have to be installed with equipment needing repairs,
3) how much electricity-producing material would be needed since without consumption of substance no energy can be created.

All of this would be necessary in order to produce 10 million tons of linseed oil from water and carbon dioxide, always provided that this were possible, but *which will never be possible.* And yet this oil substance is but a single food and in general is underestimated. The plant protein remaining in the pressed linseed as a product of the sun power I have not taken into consideration. Where would all the other foodstuffs, including the curative medicinal herbs for man and animals, come from? Does Berthelot deem it possible that a chemist can create artificial apricots, almonds, figs or even beef?

The detrimental thing about this is that even men who otherwise are quite reasonable and who hold responsible positions are misled by the theories of a man in whose prominent knowledge we put faith, for example, the eminent Werner von *Siemens* who was a talented engineer but no chemist. The following utterance (1883) comes from him: "It is quite probable that future science will teach us to handle fuel in a much more *comfortable* way, namely, to create hydrogen through production of energy by means of electric current. Even the next step, from the production of *fuel* to that of *food,* is quite thinkable." "Future science" probably can only mean the

chemistry of the future, but in this respect von Siemens held expectations that never can come true.

Has it ever happened anywhere in the past that chemical science has produced something edible, that is, something *nourishing* which can form flesh and blood out of carbon dioxide, water and nitrogen? I know of no instance where such a thing has been achieved. On the contrary, by all accounts it appears as if modern chemistry always aims only at *distasteful* substances. I would only point out phenolphtalein or the host of carbolic "white tablets." In any event, in manufacturing their products they do not use the basic materials, water, carbon dioxide and nitrogen, but they use finished hydrocarbon-atom groups which have been produced by the power of the sun and from these they cement ever new combinations with iodine, bromide, sulfur, carbolic acid and ammonia. Then they boast outrageously, for instance, as they do about the aniline colors. These still blind the eyes of the entire world, but that is as it should be. As soon as we know that hydrogen has the tendency to alloy and blend, then the capacity of the various hydrocarbon groups to combine with one another does not seem to require any particular art and the fame for continually producing new color shades by this method is rather cheaply attained. It is, however, questionable whether through the production of such beautiful colors humanity can ever hope to become healthier and stronger in body and soul. I do believe that if chemistry were to transfer its one-sided activity with the benzol and carbolic combinations to more useful things, the chemists would find greater satisfaction in their profession. More public interest than personal interest must be our principal guide in the future.

At the time of von Siemens the chemical knowledge of the simple fundamental truth had not as yet become universally known. All processes of plant growth are based on the fact that the combustion products, water HHO and carbon dioxide COO, are made combustible again in the form of hydrocarbons CHH which are united by carbon dioxide, nitrogen and minerals. Is not the *simplicity* of this process in itself sufficient to have attentive admiration for the creating power of God and its omnipresence instead of remaining in ignorance and pursuing chemical phantoms?

It must still be explained that in plant growth the combustible hydrocarbons are not only *united* with *carbon dioxide, nitrogen* and *minerals* but at the same time they are also *kept separated* from one another. This means that when the cementing and simultaneously-separating groups (carbon dioxide, ammonia and minerals) are extracted from the plant cellulose only the hydrocarbon groups remain behind in the same way as actually happens when the degree of heat is increased in *dry distillation* of wood, when amongst others lighting gas and wood spirit as well as tar and ashes come away. Siemens was of the opinion that it would be more *convenient* if the burnable ether-hydrogen gas were available by itself as burning material, then the gas could, for instance, be produced in Berlin and transferred through pipes to Charlottenburg, Friedenau, and other places.

On the contrary, it is my opinion that we already experience sufficient shocks from explosion nowadays and do not need anything further to increase our constantly vibrating nerve functions. Siemen's suggestion "through production of energy" does in no way make the invented plan seem profitable, because productive work or productive power of any kind does not exist on this earth except in the form of *transformed sun power*. As an example, the electricity derived from Niagara Falls is in reality only delivered by the *sun* as the actual source. The heat rays of the sun transform the surface of the ocean into water vapor and carry this up high to the heavens. When cooled off the vapor comes down again and as a waterfall it represents exactly as much force as was required to carry it up in the form of vapor. And since every productive power on earth can be attributed to the effect of the sun rays, it is most essential

that we use this sun effect, free of charge, as much and as efficiently as possible.

Why then do we absolutely desire the pure ethereal substance from the sky? Jupiter's thunderbolt threw the giants who stormed the heavens back into the depths. Correspondingly, we have recently seen at Treptow how exploding hydrogen gas shattered the airship. The smaller the quantity of minerals which keep the hydrocarbons separated, the more inflammable they become. Since nearly all the minerals of the cereal grains are contained in their husk substance which is separated as bran, the newspapers more and more frequently during the last few years report fires and explosions in the large flour mills. The weight of grains consists on an average of one-sixth moisture (water) and more than half is *starch which is completely void of minerals*. In the mill with its constant heat day and night a considerable amount of the water content disappears through parching and in the very finest flour produced, the content of mineral-free starch flour reaches as high as 70 percent. The fine dust which also fills the space needs only to be ignited at one spot by a lamp and an explosion will follow as if it were gun powder. The explosive powder dynamite was only put to practical use after Alfred Nobel succeeded in taming its great inflammability by adding isolating silica (kieselguhr).

Only if mixed with minerals can hydrogen serve a useful and beneficial purpose. The farmer and forester help us in this respect when they use only natural *ground rock fertilizer.*

About a third of the population makes its living from agriculture. For all practical purposes this will remain so forever and we shall benefit as long as the world goes round and not only after 100 years when according to Berthelot there will be *no more farmers.*

To lack appreciation for the earth as our most natural source of nutrition! — this can only be possible when we carry our heads so high from conceit that we are no longer able to see the earth at our feet. Can we expect such haughtiness to lead a nation to welfare and morality? Looking back 6000 years, I can but come to the conclusion that, without chemical professors, the sun and earth, air and water have always furnished nutrition and that consequently our worship is not due to the professors of chemistry but to Divine Providence.

It is true that many oppose my theories, but through God's grace I was gifted with a *critical mind* and even apart from this I am not so completely alone because I have truth on my side:

"He who is accompanied by truth
may be solitary,
but is nevertheless a power."

THE VITAL SIGNIFICANCE OF MINERALS IN THE BLOOD AND IN THE ENTIRE BODY

Our vitality, our life functions, our energy, our body warmth, our electric tension — all are due to an uninterrupted *combustion process* whereby a part of our physical substance burns up (oxidizes) by the inhaled oxygen of the air in the same way as wood, which through its combustion heats the stove and *wood ashes* remain.

Thanks to breathing our vitality is newly born each moment. (Proof: When breathing ceases as in drowning, the lamp of life of even the most healthy and intelligent man extinguishes in a few minutes.) Cool air is the life principle for body and soul; it is our most important source of power and yet is free of charge.

Our capacity for work and joy in living depend primarily on breathing unpolluted air rich in oxygen. Then we enjoy our food, our digestion functions well due to the secretion of normal digestive juices (bile, pancreatic juice,

stomach and intestinal fluids); all glands work in their proper way and the evacuations are normal. Happy spirits, desire to communicate, delight in art and music, creative drive and consideration for our fellow citizens are the result. On the other hand, deficient *breathing* and *protein overeating* cause a host of spiritual and physical sufferings. In brief, the greatest number of pains of body and mind originate in the *kitchen* and from stale *room air* .

The burnable hydrocarbon CHH (fat) of our body, through breathing oxygen burns up into carbon dioxide COO and water vapor HHO and thus releases the *minerals* with which they were organically combined, in the same way as the ashes of wood are released from cellulose (wood pulp). These liberated *ash constituents* are dissolved in the blood water (serum) and are discharged downward by means of the kidney function as urine together with urea, whereas the gaseous combustion products carbon dioxide and water vapor, are exhaled upward through the lungs.

The continuous discharge of the burnt and liberated ashes from all body parts makes it necessary that the organs, glands and tissues renew themselves and maintain their *cohesion* in no other way than from a constant supply of circulating blood furnishing the necessary material (including the very essential *ash* constituents, which give the tissue of the organs *firmness* and *cohesion)* for normal restoration. Evidently the blood is capable of such function only upon the assumption that it can draw *uninterruptedly* from a constant flowing source and not only temporarily when we visit mineral spas as patients. This source is the system of lymph vessels which gets its provision from the chyle extracted from the chyme. Between the internal jugular vein and the subclavian vein the system of lymph vessels pours its contents into the blood stream.

Since our modern food grown on nitrogen-fertilized soil *lacks* certain minerals either totally or partially to insure the complete renewal of the glands and organs, it is clear that from such organs lacking mineral support a correspondingly diminished function will follow. For instance, when giving preference to meat, white bread, wine and beer, not sufficient replacement of sulfur, calcium and magnesia can take place, because these substances are found in meat and beer in far too small amounts to equalize the daily loss. Plant food, potatoes, whole grain bread supply the balance, provided that they have been grown with mineralized compost or ground rock fertilizer. (Please read this twice.)

The Calorie Theory. What part the non-burnable stony material of our body would play was not previously known, so it was entirely ignored in our books on organic life. And so the calorie theory was developed: "Man needs daily so and so much fat, so and so much protein, so and so much carbohydrate (sugar and starch) and so and so much water." Thus is happened that physiology, since it lacked the *stony material* as a solid foundation, erected its school building "in the air," and still today chemotherapy tries to rebuild the degenerated, devitalized, chronically-sick human beings by means of ash-free medicine: "white tablets" such as aspirin, phenacetine, the barbiturates, etc. of endless description, synthetic vitamins and hormones, and the antibiotic "wonder drugs." *This, however, is a physiological impossibility.* These "remedies" contain *no earthy substance* to which life can hold onto, but consist only of gaseous volatile material. Antibiotica means "enemy of life" and these earth-free, partly poisonous drugs are indeed detrimental; they strangle us in the air, like Antaeus was strangled by Hercules. Ultimately *earth* serves to cure everything — man, animal and plant.

With a thousand fiery tongues I would speak to man, with a thousand fiery arrows I would engrave in all their hearts, that *primeval rock and water* are indeed the most concentrated *egg* substance, which transforms into sugar and bread, milk and meat, ensuring us life, strength and health.

Iron and Manganese. The normal blood albumin is essentially a calcium-earth sodium compound in which at the same time iron and sulfur form a part.

Lack of calcium (chalk) in the blood is readily noticeable by defective teeth, and sulfur deficiency is recognizable by excessive loss and poor growth of the hair. Insufficient content of iron in the blood shows itself through pale face color and bluish color of the lips (cyanosis) accompanied by depressed spirits; and the lack of soda manifests itself through gland swelling and abnormal forming of cartilage (cancer). These manifestations should be considered as barometer readings which tell us the condition of the total *inside* of the lymph and blood vessel system. We will now go into this subject in detail.

The total amount of iron contained in the blood of an adult averages not more than four grams, or about 60 grains. From this small amount it was concluded that it was insufficient to produce the moving force that the body manifests. But hereby was overlooked the *multiplying* factor assisting the four grams of iron which is called *blood circulation.*

The left side of the human heart is able to store about six ounces of blood. Each pulsation drives such a quantity through the aorta that with 70 heart beats within a minute about 25 pounds of blood are pressed by the heart into the aorta. In other words: Our *whole blood* (the strongest man averages about 25 pounds of blood) travels so fast through the entire organism that after one minute the blood driven out by the heart returns to the heart.

What is the result? The four grams of iron in the blood are constantly kept in motion so that in one hour, 60 times, or within a day and night 24 x 60 times = 1440 times the four grams of iron travel from the heart into the aorta. Therefore, one can say that within 24 hours 1440 times 4 grams or nearly 13 pounds of iron travel from the heart through the body. And this brings forth no dynamo-electric effect?

In order to make this process more understandable I wish to mention an artistic trick which has a great resemblance to the effect reached by the natural blood circulation:

When the production of *Aladdin's Lamp* is presented on a large theatre stage, the dowry Aladdin pays for the sultan's daughter is presented by means of many camels and slaves laden with it. Such an immense and immeasurable wealth passes before the stunned eyes of the sultan and the spectators that one thinks he cannot believe his own eyes. The slaves and camels and treasures seem to have no end. In reality the same camels and slaves who disappear from the left side of the stage go behind the stage and appear anew at the right side of the stage. In such a way they present themselves ten times. But the spectator simply has the impression that the tenfold number passed over the stage but once.

Now! The *spectators* — these are our *nerve endings.* For them it is absolutely immaterial, from the point of view of the electricity-producing effect, whether an entirely new iron amount passes before them or whether it is one and the same iron which passed a minute before.

Two factors work together in our blood circulation: 1) the active attractive force of the *nerve* substance, and 2) the passive attraction of the *blood* substance. In the nerve fat its content of the *electrical*-exciting ammonium phosphate is important in maintaining the attraction, and in the blood it is its content of *iron* which is significant in maintaining the *magnetic* attraction. (It was Faraday who proved that the blood's iron content is of magnetic nature.) Therefore, magnetic blood and electric excitement of the nerve substance influence one another mutually and depend upon one another. When four grams of iron is the standard amount in the blood it is clear that any decrease in the iron content will reduce the attraction of the blood fluid. Then the electric nerve endings look in vain for the electrical tension-producing bloodstream and the resultant condition is termed nervous disorder (neurosis).

The magnetic iron of the hemoglobin permits all kinds of nerve functions in the *cerebral* as well as in the *sympathetic* (intestinal) region of our body, so that the thinking ability on the one hand, and breathing, digestion, and excretion on the other, always depend on the amount of iron in our blood. Since the

iron accompanies the nerve functions up to their last actions it becomes clear that the *urine secretion* too, comes under the influence of the hemoglobin.

In order for the hemoglobin to pass the partially-oxidized urine substance out of the system it is positioned like a policeman who is responsible for taking a tramp across the border. The policeman has to go across the border *as well.* In this manner we lose one-hundredth part of our iron reserve, namely four centigrams, every day in the form of urohematite.

If this loss is not made up by suitable nutrition it will soon become noticeable. When four grams of iron are transformed into 12 pounds in the blood circulation, the loss is likewise multiplied.

Another consideration is that our physical *warmth* depends on the iron content of the blood because of its chemical compound with oxygen. It is only this warmth which influences the electrical reaction of our nerve substance. (Cold makes the nerve material motionless and insensitive.) In the lungs the iron is oxidized to a higher degree by the oxygen which has been inhaled, and a part of this oxygen is transmitted to the nerve endings so that a certain amount of nerve fat is burnt up into water, carbon dioxide and phosphorus salt. This produces our energy and, for a large part, our physical warmth. The chemically burnt-up nerve fat is replaced by new oil which flows from the wick-like cylinders of the nerve cords. The supply of new oil takes place as long as there is a reserve which on an average lasts 18 hours. Then the cerebral-spinal nerves refuse to function any longer, tiredness and sleep follow, the flow of blood leaves the brain and goes to the intestines. While the *cerebral-spinal* nerve system is thus at rest, the function of the *sympathetic* system starts, which takes care of the renewal of material and supplies the nerve endings with new phosphate-containing oil through the function of the lymph vessels (which draw their material from the digestive tract.) This process revives the brain and the spinal nerve system for their tasks the following day.

Manganese, in combination with iron, shows an increasingly powerful electric chain effect in relation to the chemical union of the inhaled oxygen and its transmission to the nerve material.

The magnetic bloodstream plays the role of mediator in this process. This is convincingly clear from the fact that the nervous system ceases to function and death results when the blood flows away out of cut arteries as we can also observe in slaughtered animals.

Hensel's Tonic. On the basis of these considerations I have prepared a mixture containing iron in the form of magnetic oxide of iron as well as calcium combined with formic acid and acetic acid. On account of its tonic effect, i. e., its nerve-strengthening effect, I have named it Hensel's Tonic. Since we lose four centigrams of iron every day with the urine secretion it is conceivable that the magnetic source of our nerve electricity can dry up completely within 100 days if we are confined to a sickbed and the necessary amount of iron is not properly supplied. As a counter effect one can stimulate the languishing lamp of life with this preparation.

It is well known from the history of medicine that the Swiss doctor and chemist *Paracelsus* cured many illnesses, which by ordinary observation appeared to be of completely different origin, with a drink that he called *Aurum potabile* (gold drink). The recipe for this drink is lost. However, since gold has a poisonous effect on the organs it is presumed that this drink did not contain gold but iron and that the gold-yellow color of the drink attributed to its name. It is possible that Paracelsus' drink was similar in composition to Hensel's Tonic.

The presence of formic acid and acetic acid in Hensel's Tonic implies that the blood is supplied with new nerve-reviving electricity, which under normal circumstances is taken care of by the *spleen.* The spleen has a rejuvenating effect on our body as a sort of relay station due to a seemingly insignificant but nevertheless important faculty. Namely, while in all other parts of the body the very fine ends of the arteries coming from the heart immediately turn

into fine capillaries of the veins leading back to the heart, this is not so in the spleen. There the artery-capillaries suddenly stop when they have attained the fine measurement of .02 mm. diameter and they end with a bubble (Malpighian corpuscle). Under such circumstances the *sudden stop* with the impact of the magnetic *blood flow* against the membranes of the small Malpighian bubbles, according to physical law, causes *electricity*. Through this electricity the blood which has entered the spleen is transformed into plasma which sweats through the membranes of the Malpighian bubbles. This process is equivalent to the *liquefaction* of the red corpuscles in the blood when electric sparks strike it. This, incidentally, can also be locally effected by electric therapy which, however, does not result in an increase of the strengthening constituents of the blood.

The many Malpighian bubbles in the spleen indeed have the same effect as a similar number of electric conductors, because the product of their electrical function is found in the formic acid and acetic acid in the fluid plasma which sweats through the Malpighian bubbles, thus forming the acid spleen pulp *(Pulpa splenica)*. Formic and acetic acids are the electrolytic split products of the nerve fat. From the acid spleen pulp the capillaries of the spleen veins draw their acid blood directly to the liver, and in this gland the electric effect of the formic and acetic acids enables certain cells, which are constructed like galvanic elements, to separate from the albumin the opposite of *acid*, that is, *alkaline* bile.

Consequently, the functioning of the liver depends on the normal functioning of the spleen. Since the liver passes its bile products to the duodenum for digestive purposes, indigestion will occur when the bile is not in good condition.

Since the formic-acetic acid containing magnetic oxide of iron and calcium (Hensel's Tonic) promotes the new formation processes in the intestines, it can in many cases suffice by itself to bring about an improvement in the assimilation of eaten food. As a result of a better appetite and an increased assimilation of the chyme, everything necessary is then provided for new blood formation and the organism will be strengthened day by day when this dietetic-hygienic drink is taken. One can, however, attain the desired good health more quickly when in addition *all* physiological *salts* and *minerals* which the organism needs are taken in suitable proportion. This brings me to the subject of the insidious danger of excesses.

Smoking of Tobacco. The excessive use of tobacco is injurious because the ammonium cyanide of the nicotine combined with the *iron* of the blood gelatine (hemoglobin) produces a black compound (Prussian blue) which is *unable* to retain the inhaled oxygen. Consequently, insufficient oxygenated blood is passed on to the liver and the result is ineffectual bile secretion and progressive debility. To complete the mischief the tobacco *tar* plays a part as well. The tar contains *creosote* and *carbolic acid* which are also found in beechwood tar and in the smoke of burning wood. These two substances are *fractional products* arising from *dehydrated cellulose* and they manifest a threefold detrimental effect, having lost a part of their hydrogen:

1) They both greedily absorb water. You can prove this if you pour creosote or concentrated carbolic acid into the hollow of your hand. Where the moist hand is touched it will almost immediately turn into a sort of dry leather. Washing the hand with water soon after will not change the condition, but by rubbing the particular part of the skin with glycerin the lost moisture will be chemically restored and the skin will very soon appear normal again. Thus creosote and carbolic acid drain a certain amount of moisture from the tissues of the body as occurs to meat in the smoke chimney. By such extraction of water the flesh becomes drier, leaner, durable, more solid and *incorruptible*. But such incorruptibility serves no purpose at all in the stomach — quite the contrary. As occurs to the flesh substance in general, so the mucous membrane of the stomach lining reacts particulary to the withdrawal of moisture by creosote and car-

bolic acid. Furthermore, creosote has a *parching* and at the same time *withering effect on the material of the nerve branches* leading to the stomach lining, therefore a *paralyzing (!) effect on the stomach nerves* so that these are no longer capable of producing new stomach juices because the separation process of the digestive juices from the blood can only take place under the influence of nerve activity. That is the first harm.

2) The second is the antiseptic property, i. e., the prevention of the chemical decomposition caused by the ability of creosote to prevent the decay of albumin. The creosote prescribers certainly exploit this property of fighting *bacteria*. But this is fundamentally wrong since the decomposition in the stomach and intestines has to take place continuously by chemical splitting of albumin in order to make new compositions possible. One only has to think how ill-smelling, even in a healthy person, are the vomit and no less the contents of the intestines and how, nevertheless, new odorless flesh and tissue substances are formed under the electro-synthetic influence of the nerves. By lack of appreciation of these physiological facts, chain smokers are prematurely doomed to a place under the sod.

3) A similar harm is inflicted when, instead of helping consumptive patients form new oxygen-binding *blood corpuscles* by means of sulfur, calcium, iron and soda, they are placed in a "pneumatic cabinet" where for a whole hour each day they have to inhale their own exhaled vapor of carbon dioxide and carbolic acid instead of oxygen. (Carbolic acid is one of the constituent parts of creosote). Soon the patients can no longer digest food. Carbolic acid, respectively creosote, not only withers and paralyzes the *stomach* nerves, but it also has the same effect on the nerves of the *lungs*. In this way the necessary *oxygen-inhaling which makes all the nerve functions possible declines steadily and becomes weaker.*

In addition, one more observation. In a weak-blood condition, that is, with qualitative anemia, the self-electricity of the nerves functions in a disorderly, irregular manner (nervousness). Such predominant action of the nerve material causes a certain type of *cough* with which no expectoration takes place (nervous cough). This coughing is wrongly classified as a pulmonary ailment.

Chemically-ignorant medical men have observed that by swallowing creosote pills the *dry cough decreases considerably*. From this they conclude that a cough medicine containing creosote must be good and effective, but this is a false conclusion. It is even completely contrary to the ABC's of anatomy; namely, the ramifications of stomach and lung (pneumogastric) nerves are tied by a common branch to the vagus nerve, thus belonging inseparably together. Therefore, if anything beneficial is given to one, it will also be of use to the other. For example, the pure, fresh air inhaled into the lungs during mountain walks creates a healthy appetite and so affects the stomach, while on the other hand, the nourishing food will in turn strengthen the lung tissues. In sickness too, the lungs and stomach have a common fate. Whatever harm is done to the stomach, the lungs will suffer for at the same time and vice versa. In this way an icecold drink in the stomach can cause paralysis of the lung nerves and result in pneumonia. And when pneumonia has been caused by inhaling icecold air, the stomach digestion ceases to function at the same time. From this anatomical unity of the lung and stomach nerve area it is clear that with the *parching and paralyzing of the mucous membrane of the stomach by creosote the lung nerves will also become paralyzed* as a natural sequence. All nerve functions diminish and become ineffectual when there is a deprivation of the enlivening oxygen upon which they depend.

On both physiological and chemical grounds the blood constitution definitely needs certain *minerals* for its normal function. Not only are these not supplied by the mineral-lacking creosote, but the creosote prevents them becoming absorbed by the body. Recently, various investigators have produced the proof that there is a connection between lung *cancer* and cigarette smoking. Lip cancer

has for a long time been known to occur in habitual pipe smokers. Concerning this the following figures were published in the *British Medical Journal* 1956: "In 1955, around 17 000 English nationals died of lung carcinoma. Lung cancer is a terrible disease against which little can be done by the lung surgeons... There is the physiological difficulty that the evil consequences of smoking only show up after tens of years and the fear is therefore minimized... In 40 000 cases examined the death figure was highest among those who had smoked up to the last, while lung cancer occurred in much smaller numbers in those who had given up smoking at least five years earlier." That is comforting information. "Examinations of smoking by doctors: From 3045 smokers, 1595 (52.4%) have indicated physical complaints. Of these, the heavy smokers proved to have health disorders four times more frequently than the light smokers. Most of the following diseases are found in heavy smokers: angina pectoris, heart muscle bleeding (infarct), chronic bronchitis, bronchial cancer and arterial circulation disturbances in arms and legs, etc.... It certainly deserves attention that more than 50% of the medical smokers have observed a more or less severe damaging effect on their own health." *(Wendepunkt,* Zürich, January 1957).

The American prohibition law passed in 1920 proved that a prohibitive measure is entirely *impracticable.* The smuggling of alcohol from home districts and neighboring countries turned to such catastrophic excesses that the prohibition law had of necessity to be repealed by President Franklin D. Roosevelt in 1934. Only a heavy *taxation on the cultural poisons:* alcohol, tobacco, together with the nerve-paralyzing "white tablets", can reduce their use.

The White Tablet Rage sweeping the civilized world is rife with insidious dangers because the raw material of these products is also based on *carbolic acid.* Here are a few examples:

Aspirin is a compound of salicylic acid and acetic acid.

Salicylic acid is a compound of carbolic acid with carbon dioxide.

Sulfocarbolic acid is carbolic acid with sulfuric acid.

Salol is carbolic acid with salicylic acid.

Sozoiodol is sulfocarbolic acid with iodine.

Thymol is carbolic acid with butane (butter hydrocarbon).

Aristol is thymol with iodine.

Phenacetine is carbolic acid with acetic acid.

Antiphyrine consists of carbolic acid, ammonia and acetic acid.

Salipyrin is antipyrine with salicylic acid, etc., etc.

Always there is carbolic acid to which something has been added, under a new trade name.

Then there are the *sleeping tablets* consisting of barbituric acid which originates from urea. All these tablets are *not* remedies with healing value as they do not contain minerals and salts indispensable for the formation of healthy new blood. They are all narcotics which have a paralyzing effect on the nerves and which degrade the people to *slavery with a craving for poisons.* Evidence of this addiction as reported in an American Magazine, October 12, 1953: "The British consume 10 million aspirin tablets per day." According to the eminent British surgeon Sir Heneage Ogilvie: "Great Britain is on the dangerous verge of becoming a nation of sleeping tablet addicts." Ten percent of all the 200 million prescriptions written every day by the National Health Service doctors are for sleeping drugs. Half of the 545 suicides in 1951 were committed by taking sleeping drugs.

But there is a *100% effective method* to eliminate this poison rage and simultaneously to again engender the *miracle of regeneration* to the human race. This only natural way is to use ground rock fertilizer which replenishes the exhausted soil with minerals (ashes) and produces health-promoting nutritive plants. Such nutritive plants grown on soil nourished with ground rock contain the combination of *mineral substances* (ash constituents) required for normal red blood formation so that the blood can "draw from a full source" and can restore any

deficiencies by its pure, natural healing power. The minerals are the most natural substances to build new healthy blood and to calm the nerves and at the same time they are the natural preventive for the craving and use of the "social" poisons: alcohol, nicotine, aspirin, drugs, etc. ("Tell me, my friend, have you ever met a sleepless person who was cured by tranquillizer pills and not hurt?" — Dr. Bircher-Benner, Zürich.)

Healthy blood is not only the most excellent *medicine* and a protection against sickness and disease but it is at the same time the *doctor, the most effective natural doctor,* who lives in our organism, who is always prepared to help and who never errs, the "genuine naturophatic physician."

Good or ill health of man, animal and plant depends on the *kind* of fertilizer we use on our agricultural land. The more nitrogen our food contains, the more preponderant is the ammonia NHHH, opposed to the earth substances which unite the *albumin.* It is then so much easier for the blood gelatine to chemically disintegrate, and this is characterized by progressive weakness and neurosis.

All nitrogen compounds have the chemical property to transform very easily, to shift and to *separate* and so to split up in a disorderly manner into small atom groups or fragments of a partly *poisonous character* containing CNH prussic acid (self-production of ammonium cyanide cyanose). All organic ammonium phosphate constantly moves, regroups, recomposes and transforms. It has independent life and is extremely changeable.

Intense *nervous strain* can produce snake poison, hydrophobia poison and insect poison; atmospheric *heat:* anthrax poison, smallpox poison, plague poison, cholera poison; natural *decomposition:* cheese poison, sausage poison, corpse poison (ptomaine). All these prussic acid poisons effect a similar splitting process in cases of physical infection. More *chemical light* on the occurrences in life is necessary instead of attributing infections to the poor bacilli or bacteria.

Common Salt. (sodium chloride Na C1.) The whole animal kingdom owes its existence to the *salty sea water* into which sunk the phosphorus-sulfur-cyanogen vapor of the primeval atmosphere, our planet being a child of its sun-mother. Through chemical absorption by the sea water the cyanogen CN *de-poisoned* itself and formed soluble living protein substances, namely: carbonate, oxalate, formate, sulfate and phosphate of *ammonia NHHH.* In these new products is the necessary material for the creation of plant and animal organisms. *(See The Chemical History of Creation.)*

Inasmuch as the salt content of the primeval sea varied in different regions, the different human races created at that time is explained. The blood of the Caucasian race shows about 1 percent salt parts, a normal proportion that provides firm flesh and tissue substance. When the blood's salt content is diminished the biconcave red blood discs swell through water absorption, take spherical form and lose the capacity to cling together for the creation of new tissue substance. Similar to the blood discs, when there is a salt deficiency the connective tissue and the muscle and sinew substance become watered, particularly the kidney substance which then lets the watered blood protein pass through (albumin urea).

All salts are electric excitants. Meat when laid in salt is protected against decay. Polar bears and seals do not freeze because along with the fish they swallow sea water. Soda keeps the milk curd liquid and protects our blood gelatine from coagulation leading to the cancerous formation of cartilage. The healing power of *cod liver oil* rests on its content of *iodine, bromine* and *chlorine,* which the fish has assimilated from the sea water for its body economy, because the hydrogen-chloride as well as the iodide and bromide acids have the faculty of providing better *solubility* of earths which are less soluble, such as calcium sulfate and phosphate for instance in (rickets, gall stones, sclerosis.)

Because of the high atomic weight of iodine, bromine and chlorine and their

relative superior strength, the protein binding and quieting effect of the remaining ash constituents in our body considerably increase their potentiality according to the law of chain reaction. In order to complete the "physiological accord", minute amounts of iodine and bromine, in proportion to our primeval cradle the sea water, are sufficient. This confirms the teaching of Paracelsus: "The dose alone counts whether a thing is poison or not". If our blood lacks mineral *salts,* our body electricity diminshes since it is our immediate source of life and all the organs react to it without fail. The quality and worth of our nutrition not only depend on its content of the nitrogenous hydrocarbons (calories), but on their *ash* content, i.e., the minerals originating from the primeval rock fertilizer which hold the body and soul together.

Before the steamship and railroad were invented we even had salt wars through want of known salt mines or salines and salt was an expensive luxury. Lack of it caused the feared pestilences of the Middle Ages, assisted, of course, by unsanitary conditions. But today, on account of its preserving property and cheapness many of our daily foods, especially the animal protein products, are oversalted at the expense of public health. "Too much is unwholesome".

Seaweed (Kelp) Many island inhabitants in the Pacific Ocean use young seaweed as a vegetable or, for their domestic animals, as fodder. The seaweed washed to the shore is used as fertilizer or becomes valuable technical and pharmaceutical merchandise thanks to its rich content of minerals and rare elements. The same applies to

Sea Salt which, aside from sodium chloride, contains calcium *sulfate* (gypsum) and magnesium *sulfate* (Epsom salt) and rare minerals, accounting for the astonishing fertility of sea fish and crustaceans. Sea salt is recommended for use in the kitchen, in bakeries, etc., instead of the refined saline salt. Again in hydrophathy or the treatment of disease by external use of water (bathing), sea salt is used as well as extracts of medicinal herbs.

Silica. As a necessary mineral for whole red blood, silica so far has not been considered sufficiently. It is not only indispensable for the growth of hair but forms, so to speak, the link between the blood and nerve substance, since it is found in the egg white as well as in the yolk of the egg. The yolk produces the nerve substance and from the egg white the remaining tissues of the bird are formed. Silica has the property to hold heat and electricity so it is a good *insulator.* Therefore, when a person is inclined to chills, without mistake one can conclude that there is an insufficient amount of silica in the blood along with other minerals. In nature there is no phenomenon without general significance. So we see how in all rocks (phorphyry, granite, gneiss, primeval clay, lava, basalt) silica forms the uniting element which holds together the other rock constituents (potash, soda, iron, sulfur, calcium, magnesia, clay, fluorine). The same condition exists in our blood. See *The Chemical History of Creation* for the explanation that man was created from rock substance.

I repeat, silica has the power, as can be proved by quartz and mountain crystal, to hold together organic substances in electro-chemical tension, thereby preventing *disintegration.* Herein lies the meaning of *antisepsis.* Silica does, indeed, possess such an antiseptic power in the blood albumin. Wounds on which clay (clay-iron silicate) is laid do not putrefy. A piece of meat I had packed in silica earth, I found after two years undecayed, although it was very tough through loss of water. The farmer's wife winters her vegetables, carrots, radishes, etc., bedded in dry sand. In the stomach of poultry we find small stones and sand grains (silica) that are digested and formed into a warm feathered skin, since the mineral base of bird feathers and hair is silica and sulfur, which protects the animals with an insulating coat retaining the warmth. The Guinea negroes consume a loamy red earth and are thus protected against the Guinea fever to which Europeans succumb since they do not want to imitate the "stupid" negroes in swallowing such stuff which

scientists claim is entirely indigestible. — Yet the Europeans perish from their ash-free tablets!

Certain kinds of plants are constant consumers of silica; grain sheaths owe their stability to silica so they can rise again when wind and rain have forced them down, whereas the cereals fertilized with nitrogen stay down as inferior field fruit. The tropical teak tree impregnates itself with so much silica that it becomes immune to the attack of innumerable insect pests including the spare-nothing termites. It is even immune to decay, although the lumber then becomes so heavy that it loses its floating capacity. The fast-growing bamboo reeds, etc. shooting out of the warm, brooding prehistoric marshes need the solid firmness furnished by silica in order to support a height of 30 to 40 feet. (Further samples are found in the excellent book "The Last Chance" by Annie France-Harrar, Munich, 1950, which masterfully explains the problem of *fertility and humus renewal* on our earth, as viewed from the results of a thirty-year study on all five continents.)

Silica undoubtedly possesses an epidemic-preventing property, inasmuch as it helps to protect the blood gelatine from chemical decay. Since all plants assimilate silica from the earth, vegetarians have an indisputable advantage over those who live mainly on meat, white bread, wine and beer, which contain but traces of silica, sulfur and limestone. And the healing power of the silica-holding millet and the herb horsetail *(Equisetum arvense),* as well as the healing effect of the sulfur-holding onion and leek vegetables, is known to all vegetarians and botanists.

Even that part of silica in the vegetables which exceeds the need of the blood and apparently is unused, as it leaves the body with the excrements, is of benefit merely because of its presence in the digestive tract. By its passage through the intestinal channel, silica has the power to activate the electrical function of the intestinal nerves and from there to influence the entire sympathetic nerve system. The fine senses of English race horses are due partly to the silica-rich Hungarian oats fed to them. And does not the Arabian horse owe its clear senses to the dessert sand? Referring to the antiseptic, pest-preventing effect of silica, a hog raiser once asked me to explain why those hogs which had the opportunity to tear up the earth with their snouts and to eat of it were spared from the "hog murrain" whereas at the same time and with the same fodder and much buttermilk in cement-floored stables all hogs perished from the epidemic. I replied: "The sand accounts for it", and I tried to explain it to him but he looked at me with a doubting-Thomas expression. At his agricultural school he had never heard one syllable about silica being among the blood-forming substances; he was taught only about protein, fat and carbohydrates.

Therefore, it is clear that neither medicine, nor vaccines, nor slaughtering of tubercular cows, nor cattle insurance, nor government subsidy can bring about lasting relief *as long as* the misled farmer continues to poison his cattle with *nitrogen fodder,* because the agriculture professors deliver the false teachings that "nitrogen is the motor of all plant growth." At the same time there is *dead silence* about the most important aspect, the physiological significance of the minerals.

Clay (aluminium silicate), derived from the weathering of primeval rocks (granite, gneiss, porphyry), contains impurities such as sand, limestone and iron. As traces of it are found in bone ash, I believe that clay too plays a health-preserving role in our organism because certain tribes in the tropics eat iron-containing clay or loam thus protecting themselves from fever and blood disintegration diseases. In naturophatic treatment, the healing worth of loam water for internal use and loam packs externally is fully recognized.

The yellow coltsfoot *(Tussilago farfara)* is a clay-storing plant used as medicinal herb tea. The club moss *(Lycopodium clavatum)* gathers such an amount of aluminum metal in its sulfur yellow spores that when lighted in the air it burns with a bright light and strong

heat into aluminum oxide. In former times it was used as an artificial lightning flash on the theater stage.

Seaweed assimilates an abundance of minerals and microminerals from the inexhaustible storehouse of the salty sea water, forming an organic plant product readily absorbed and digested by the human and animal organisms. Authorities on raising domestic animals confirm and reiterate the nutritive and healing value of seaweed as fodder in case of slow growth, decrease of procreative drive, insufficiency of milk production, sterility, abortion, easy susceptibility to diseases, etc. No wonder! Just look at the treasure of seaweed ash (kelp) that dry seaweed contains:

Potash	3.25%
Calcium	3.08%
Chlorine	1.83%
Soda	1.40%
Sulfur	1.35%
Magnesia	0.42%
Iron	0.24%
Phosphorrus	0.13%
Aluminum	0.12%
Boron	0.07%
Iodine	0.06%
Manganese	0.05%
Bromine	0.02%
Zinc	0.008%
Nickel	0.002%
Fluorine, silica and traces of dozens of other minerals	

This shows that a plant can assimilate and incorporate into its structure only those minerals that it finds in the soil. We must remember that not only can ammonia NHHH replace the solid bases (earths) during plant growth, but the bases among themselves can mutually replace another.

Clay and silica both are powerful *antiseptic* and *disinfecting* minerals, i.e., they chemically unite organic substances, therefore prevent the decay process of the ammoniacal protein. The same chemical properties are characteristic of calcium and magnesia. All of these elements are readily available in ground rock fertilizer. Not only men are what they eat, the plants too are what they eat.

Calcium and Magnesium Earths. The clinging together of soap bubbles (sodium oleate) shows us the electro-chemical *binding* power of the minerals under whose cementing influence the hydrocarbons cluster together. If we take the soda out of soap by means of acetic or hydrochloric acid, no foam or bubbles will appear. In sodium as well as in ammonia the oily compound becomes soluble when *water* is added. When calcium earth or calcium salts or manganese or iron or magnesium salt is added, it immediately forms into an inflexible, insoluble and sticky plaster-like compound. Without this *cementing* property of the minerals all created things - human beings, animals, birds and fishes, trees and plants - could not exist.

Animal bones contain about one-third bone gelatine while the other two-thirds are mainly calcium phosphate. Furthermore, they contain 1% magnesium phosphate, which creates the firmness, and calcium fluoride. Therefore, when softening of the bones occurs, phosphate of calcium and magnesia earth as well as cooking salt must be supplied. Our teeth are *harder* than the bones because they contain $^1/_2$% more magnesium phosphate than the bones, which explains why the teeth are found to be in the best condition when bodies are exhumed.

Elephant's teeth contain 2% magnesium phosphate and the billiard balls which are produced from these teeth are forever indestructible. Finally, the teeth of dogs, wild boars, bears, tigers, etc., contain nearly 5% magnesium phosphate, so they are able to crush ordinary animal bones without causing any damage to their teeth.

Most illnesses are caused by demineralized protein-overloaded nourishment. Through the kidney secretion we lose about $^1/_2$ gram of calcium phosphate in 24 hours, adding up to 180 grams in one year and to a whole pound in three years. If this quantity is not substituted by nutrition the ultimate result, of course, is a shortage of calcium in the blood. Calcium and magnesium protect the blood albumin and the connective tissues against chemical decomposition while the *nutritive salts* at the same time assist in this process.

Calcium shortage in the blood causes the toes to rot off at a certain stage in diabetes, and a deficiency of calcium and sulfur causes the lung tissues to turn to sepsis (cheesy decomposition.) When there is nearly complete consumption of the sulfur, calcium, iron and salt substances in the blood and lymphatic juice, the content of the lymph vessels and the tissues of the lymph glands causes boils, while the cattle which is overfed with protein fodder get foot-and-mouth disease.

This happens in Africa and in India. And what has happened to the *Germans* of olden times who were as strong as bears? How is it that there are so many weak constitutions amongst our people who take to a hundred artificial aids, which are recommended to them by chemical factories and which have no other result except to "give the people a craving for poison" and to make the doctor a regular visitor to the house. Admittedly, our writing and traveling age and our sedentary habits of living, with its rushing and chasing after earnings together with the nicotine poison bear half the guilt, but the other *half* is certainly due to *unsuitable nutrition.*

Besides calcium and magnesia earths, the other mineral substances of the albumin: phosphoric acid combined with ammonia, potassium, soda and silica, as well as potassium and sodium sulfate, sodium chloride, iron and manganese, are also of specific importance for the maintenance of a normal condition of the blood albumin. Furthermore, from a physical point of view, the *concentrating* and hardening effect of the calcium earth as opposed to the liquifying, dissolving and diffusing power of the alkalies, potassium and sodium, is significant. This phenomenon can be demonstrated by the following simple *experiment:*

Take a grain of hard soap about the size of a pea and dissolve it in a basin of warm water. This gives *sodium oleate,* that is, soap in every single drop of the contents of the basin. Thus it is almost indefinably finely *divided* or dispersed. Now add to this and stir in about a tablespoonful of calcium water, which contains no more than two centigrams of dissolved calcium earth (about a third of the weight of a peppercorn). This slight amount has the power to accumulate all the hydrocarbons which were combined in the sodium oleate and to concentrate them in a very small space into a mass. The fine layer of flakes which soon floats on the water surface is calcium oleate while the sodium hydrate remains in the water. This explains how, from our sodium-containing blood, the hardening hydrocarbons united with calcium phosphate can be separated in the form of concentrated solid bone substance and how, as a result of such concentrating cementing effect of calcium, the fat and gelatine content of the bones resist decay.

Upon this explanation is based the law of *growth,* that the hydrocarbons are *held together* by a certain quantity of earth and ammonia. The *pathological* explanation is found in the opposite, namely, in *disintegration.* In conformity with this law it can be understood that calcium water, calcium formate, potassium carbonate, potassium manganate, and other minerals can check the tissue decay, as in the case of diphtheria, by their binding power.

In further conformity to this law we see how the substances *disintegrate* when our chyme after being masticated is acted upon by the stomach acids — formic acid, acetic acid, propionic acid, lactic acid, butyric acid, in order to extract the earths (calcium, magnesia, manganese, soda, potash). Incidentally, all of these acids are created by the oxidation of the nerve substance of the stomach through the active arterial oxygen. The same happens through the lactic acids in the lung tissues (tuberculosis). The fat and albumin groups (which always consist of hydrocarbons as well as ammonium carbonate) split up under such circumstances into the so-called "peptones" leucine, tyrosine, asparagin, glutamine and mineral salts; but these fragmentary substances grow together again into new body substances when, in the duodenum, the ammoniacal indole of the pancreas and the sodium soap and Glauber's salt soap which are excreted by the bile, effect their union.

Because the blood gelatine takes along the numerous minerals, which are essential to constantly renew all body tissues in the quantities in which they are consumed by breathing and urine excretion, it is necessary that our food should contain *all* the mentioned minerals. Otherwise, some part of the body will suffer. In addition, it should be noted that our blood gelatine is *protected against chemical decomposition, sepsis and decay by the minerals;* in fact, the *minerals* constitute the actual *form-giving building material* of our body. The gelatine substance, which is never lacking in the brain mass (ammonium phosphate fat,) since the brains can be tanned or hardened by chromic acid, forms the plaster or cement, or, let us say, the elastic band which holds the bone calcium, sulfur, iron and all other substances together as one unit.

Our body's power of resistance depends on its mineral substances. This power of resistance decreases in the same measure that the newly-formed blood gelatine, respectively the blood albumin, is impoverished of minerals which, of course, reduces the entire vitality.

Confirmation of this is shown by the chicken's egg. The smell of bad eggs is proverbial. And why is it that the eggs turn bad so quickly? It is because the calcium shell is not inside but on the outside. For the unborn chicken this has the advantage that the shell partly serves it as a stock out of which, through the yolk cell, it draws the calcium in the form of calcium bicarbonate in quantities necessary for its blood albumin and that it can move its flexible joints freely in order to slip out. For this reason the eggshell becomes considerably thinner toward the end of the brooding time and therefore much easier to break by the baby chicken. Without such a partial consumption of the shell substance through breathing, the young ostrich could never get out of its originally thick eggshell wall.

How lasting, on the contrary, gelatine becomes when calcium earth is present! Calcium phosphate and magnesia plus a small quantity of calcium carbon dioxide and calcium fluoride form almost two-thirds of the weight of our *bones,* including our skull; the remaining one-third is gelatine-producing cartilage. On account of the concentrating power of the *minerals* one can draw bone gelatine out of skulls by boiling after they have been in the earth for many years while the gelatine itself going into the earth soon turns into a *reeking decomposition.*

The *greater the quantity* of ash or mineral parts that are united with the gelatine substance, so much longer will it resist chemical decay. Seeds therefore remain unchanged for a relatively long time. The albumin substance in seeds is united with considerable quantities of physiological minerals of the types mentioned above. As an example, almonds contain 25% dry plant albumin as against 5% mineral substances, beech nuts 2.7%. The linseed is also a nut and contains 4.8%. Poppy seed is a small almond and contains 5.1%.

Our bones contain phosphoric acid, hydrochloric acid, fluoride and carbon dioxide of calcium, magnesia and sodium, and medical science teaches us that bones are solid, hard parts which form the *frame* of the body. In reality, bones contain arteries, veins, lymph vessels, fat substance, sinews and nerves and therefore they are not *solid* but very *lively* and *growing* material, which yields to constant wear and renewal, fortunately, as we can observe in bone fractures.

At old age when renewal does not keep up with wear and tear, it happens that the blood vessel walls produce deep grooves in the bone substance so that in the course of the skull veins the calcium phosphate disappears from the skull. This is explainable by the salt content of the blood because calcium phosphate is more soluble in salt water than in fresh water. The salt water of the blood carries the bone substance away again in proportion to what it has produced before. Due to this condition the blood is able to draw phosphate from the bones as if they were a storehouse, so they can be drawn upon if nutrition fails to keep order in the nervous system. At old age the physiological wear of the bone substance is coupled with a greater inclin-

ation to bone fracture and a slow healing process.

The reported healing effect of *magnesium* peroxide in cases of *cancer,* although by no means based on phantasy, is not due to the oxygen which the magnesium superoxide produces, but to the magnesia itself. Since not more than 3 grams magnesium peroxide is prescribed per day, this cannot produce more than three times 16/56 = 48/56 = 6/7 gram oxygen for assimilation and efficacy, but we need 500 times more oxygen every day in order to keep healthy. The efficacy is better attributed to the *magnesia's* ability to create new red blood discs provided all other necessary mineral substances are supplied. Hitherto this phenomenon has been unobserved. When sufficient red blood discs have again been created then a sufficient quantity of the indispensable oxygen which we inhale can be retained.

After lifelong study and experience with magnesia therapy, Prof. Dr. Pierre Delbet declared before the Academie de Medicine in Paris in 1951: "Magnesium chloride Mg CL_2 should not be taken as an antisepsis to kill cancer cells, but it gives the healthy cells increased power to prevent and stop an irregular, excessive cell growth. Further, I am convinced that mineral fertilizer (ground rock) containing magnesia will considerably reduce the cancer frequency." A year later, the French chemist August Lumière repeated before the Academie the importance of the salts of sodium, potassium, calcium and magnesium in the human economy, not only for cancer but for the most dissimilar diseases. Lumière reached the age of 92, Delbet 90.

The physiological significance of magnesia forms new ground for charges against agricultural professors who claim that only potassium, nitrogen and phosphate are necessary for fertilizing exhausted soil, who make no mention whatever of magnesia and who can be considered as the *main instigators* of the recurrent devastating cattle diseases and epidemics and degenerative afflictions including the ever-increasing number of heart and cancer cases.

In *diarrhea, dysentery and cholera,* carbonate of *calcium earth* and *sulfur* will certainly stop the fermenting condition of the lymph juices. Earth! Yes, calcium earth! That gives new strength and keeps us alive *above* the earth while "enervated" nourishment which is poor in minerals together with the deluge of ash-*free* "white tablets" bring us so much the quicker and the more certain *under* the earth.

In *Teeth Caries of the Gomser Children* (1937), Dr. Adolf Roos of Basle reported how formerly the population of Oberwallis used to feed themselves on milk products, bread composed of rye and bran which is so rich in earths, flour soups, peas, beans, dried meat and vegetables. Since the erection of the Furka Road and the Furka railway, the people in the Goms Valley in Switzerland exchanged their valuable Alpine cheese and butter for white flour, dough products, white sugar, coffee, etc., and this started the *tooth decay* of the children, as well as tuberculosis and diminishing power of resistance. A similar experience which was reported by Fridtjof Nansen in *Eskimo Life* is, that since the West Greenland population exchanged their seal fat and seal skins for European white flour, white sugar, coffee, spirits and tobacco, "*tuberculosis* has become so universal that it is simpler to name those who are not afflicted than to add up the number of afflicted." This is certainly quite clear and explicit: Not the imagined infection, but the European devitalized nutrition which is *poor* in ashes, is to blame for the tuberculosis of the West Greenland population, and when they again take suitable nourishment their tuberculosis will disappear without any medical treatment.

The agricultural periodicals and advertisements recommend the degelatinized bone meal, fodder calcium and chalk, as well as potatoes which are rich in minerals, and wheat bran as supplement to the cattle fodder. However, the mountain animals, Alpine goats, deer, roe, etc., get all the mineral substances which are important for life in their natural form from the Alpine herbs which grow on the stony soil; they keep healthy and provide firm, tasty meat. A

goat does not eat everything that is put in front of her, she likes appetizing food and is choosy, she demands mountain herbs rich in minerals while our stable cattle are forced to eat nitrogen fodder in gloomy stables, become unproductive and are slaughtered. And the he-goat? Is he not typically productive? As a contrast: The human race in its present condition. How many grey-haired young people! How many painted scarecrows!

The *mountain animal* living in freedom is automatically its *own doctor,* choosing its grass, herbs, bark of young branches, moss, etc., for nourishment from Nature's dispensary, which simultaneously forms its medicine because of the mineral ash content, that is, as long as it has been spared nitrogen fertilizer. All books on herbs mention the special healing power of Alpine and other mountain herbs.

Mineralized strength-giving food containing calcium, magnesia, iron, iodine, potassium phosphate (yeast) is recommended to the people with great propaganda; however, the *most natural and the cheapest way* to obtain healthy food plants is, and will always be as long as the world goes round, ground rock fertilizer, which supplies all the necessary minerals to the exhausted soil. The present demineralized diet *(adulteration* because of its being overloaded with nitrogen) is a slow *creeping poison* which degenerates, corrupts and ruins all mankind. (Also see *Perilous Food* by Herber-Ohly, published by Hans Georg Mueller, Krailling near Munich. 1959.)

Calcium fluoride also takes part in the formation of healthy bones and healthy teeth. It is indissoluble in pure water but through the glycocol COO CHH NHHH contained in the blood gelatine it becomes soluble and is transformed into ammonia fluoride. As such it is also contained in the cartilage substance of the eye lens so that any affliction of the lens which can be attributed to a shortage of calcium fluoride in the nourishment, can be cured by including calcium fluoride in the diet. The mineral water of Carlsbad also contains small quantities of fluorine combined with sodium so that diabetics who go to Carlsbad with afflicted eyes return home with sharp eyesight. However, if they return to their habitual meat diet which provides them with no fluorine, they suffer a relapse.

Potassium United with phosphoric Acid (by displacement of aluminum phosphate with potassium silicate originating from primeval rocks) not only is present in cereal grains, but it also forms the mineral basis of flesh. All our healthful nutriments contain sufficient potassium phosphate, including milk which is rich in calcium. However, when cows are forced to feed on nitrogen overloaded fodder and their milk is given to infants, naturally the content of potassium phosphate lessens correspondingly. So instead of firm flesh and firm lymph glands, a loose spongy tissue results. This is called *scrofula.* When food containing enough earthy matter is eaten, the blood formation becomes normal, and healing results.

Calcium phosphate, together with some magnesium phosphate and calcium fluoride, is the basis of *bones.* Ammonium phosphate is the basis of the *nerve substance.* However, the elastic *gelatine substance* of cartilage and sinews contains *ammonium sulfate.* How the chemical properties of the various minerals and salts work in our body economy is of eminent importance in the understanding of physiology.

First, we must acknowledge that if nothing happens in the whole world by itself, i. e., without a motive power, then the mechanism of our body, too, needs a driving force. Now a number of chemical and physical facts lead us to recognize that the role of *motive* power of our body substance must be attributed to *phosphorus.* Therefore, the characteristic of phosphoric acid to combine with hydrocarbons and so to change into carbon dioxide and phosphine is surely of fundamental significance. Phosphine ignites readily when oxygen is admitted. Phosphorus literally means "light bearer" and its property to *shine* has been known since before the time of the Swedish striking matches. Since our brain fat is made up of a combination of phosphoric acid with ammoniacal gelatine substance and oil substance, one can plainly con-

clude that such nerve fat containing phosphoric acid affects our *mental light.* Without phosphorus, no thought.

To this must be added that apparently the phosphate-containing fat tends toward the light. Most of the nerve fat (lecithin) is found in the extremities of plants, i. e., in the seed and fruit, although it is also found in all the other plant parts. As the hydrocarbon phosphates of plants undeniably tend toward the sunlight, it is quite understandable from what we can physically observe that this occurs through the means of rays similar to light rays. Both plant and animal bodies have a straight-lined stalk or trunk from which are spread ray-forming branches. The long, stretched cylinder form in plants and animals is inclined to terminate in a spherical form where the phosphates mainly accumulate. Examples of this are the more or less round form of seeds, the round-shaped phosphate-holding yolk and the spherical brain mass which begins with a minute bubble and multiplies through the attraction of similar material into a considerable substance.

When we consider our own body with its store of ammonium phosphate-containing nerve substance and a large amount of calcium phosphate in the shape of bones running parallel to the nerve substance, and remember that potassium phosphate is the mineral basis of the flesh, we come to the indisputable conclusion that the phosphates (compounds of phosphoric acid with basic material) are the genuine *motive power* for all growth. In other words, they posses the innate property to group together organic protoplasm.

But this astonishing formation capacity of the protein phosphates must have *limits.* It finds its required restriction through the cooperation of *natural fertilizer* composed of *primeval ground rock,* which provides the soil with all the mineral substances needed for a healthy plant growth. All primeval rock contains in varying proportions the potash base *potassium,* the soda base *sodium,* as well as *calcium earth, magnesia earth, iron* and *manganese,* combined with *silica, sulfur* and *fluorine,* all this united with *clay phosphate.*

Related, but nevertheless opposite substances to the *phosphoric acid* compounds, which are essential for growth, are the *sulfuric acid* compounds. All organic formation material (protein) contains phosphorus and sulfur, but often in extremely varying proportions. Everything points to the fact that *sulfur,* respectively the sulfuric acid salts, plays the part of a *regulator* required for the clockwork of our body to ensure regular functioning, guaranteeing a certain constancy for the *entire* organism. Likewise, a machine has a mechanism to keep it from running unbridled.

In this connection it is an interesting fact that normally-constituted blood contains about *double* the quantity of *sulfuric acid* as phosphoric acid salts. Because of this an unrestricted growth of those nerve ends which lead into mucous membrane is prevented. Otherwise, when a severe shortage of sodium sulfate prevails in the blood, *new forms* arise out of the phosphate-containing nerve substance. In this category are *polyps and cancer.* If they are cut away it will serve no purpose as they resume growing if the constitution of the blood and lymph juices is not normalized by sulfur preparations or sulfur salts and earths. Surgical knives and X-rays will never be able to cure cancer. "Nutrition is the most important dominating external influence and factor," says the German nutritionist Professor Kollath pertinently. "It leaves no doubt that nutrition provides the principal key to the prevention of cancer." (Professor H. K. Bauer, cancer researcher.)

We have to recognize a dual nature in the phosphorus-sulfur-cyanogen gas of our primeval atmosphere which represents the *primeval embryo* of all animal life. It was the design of our Creator that *phosphate* should serve the sensitive nerve life, while on the contrary *sulfur* was destined to form a wall and shield and protector for the phosphate material by producing insensitive sinews and fibrin. The carbon substances and nitrogen are common to both spheres although it is the major role of nitrogen to support as an elastic substance the functioning

of sulfur. By preponderant accumulation of sulfur in the outer regions it catches and checks all shaking blows which, if they would fall directly on the subtle phosphate material, would result in *destruction* as a consequence.

In the hen's egg the paradoxical relationship between *phosphorus* and *sulfur* is also clearly perceptible. The largest amount of phosphorus is found in the *yolk* (nerve substance) while all the sulfur is contained only in the surrounding albumen. This relationship is proportionately applicable to all larger organism without deviation.

Tapeworm. The origin of an independ new form out of the nerve papillae which line the intestinal wall can be explained on the same basis as the polyps. These papillae contain fine nerve ramifications of the sympathetic system surrounded by a net of capillaries. If this capillary blood is short of sulfuric acid salt, which keeps the ammonium phosphate of the nerve substance within bounds, then the phosphatic epithelium of the intestinal nerves of the mucous membrane begins to aggregate more nerve substance out of the food mush and this is how the *tapeworm* originates. The firmly fixed hackcrown of the tapeworm is identical to the epithelium. (Somewhere in a doctor's book someone made the hypothesis that tapeworm results from the hog trichina worm and after this hypothesis once appeared in print the fable has been repeated in all the study books without anyone before me taking the trouble to study the subject from the chemical angle.)

In the same way that *sulfuric acid* proves to have a *restricting* and regulating effect on the phosphoric acid of ammonium phosphate, so also do *calcium* and *magnesia earths* limit the ammonia of ammonium phosphate.

Phosphate-containing ammonia hydrocarbon is present in the gelatine-containig cartilage which expands excessively if insufficient calcium and magnesia are contained in the food. The resulting condition is rachitis, commonly called rickets. Calcium and magnesia retard an exuberance (hypertrophy) of the cartilage substance which enables it to transform into solid bone substance. Through small particles of magnesium phosphate ammonia-magnesia is formed, an element which has a sort of "petrifying" effect, thus bringing the further development of cartilage to a standstill.

Many a phenomenon studied on its own remains unexplainable, but when studied in combination with others it becomes quite clear. Babies suffer *simultaneously* from worms and cramps when they are given diluted cow's milk without the addition of salt; milk only contains 6 to 7 percent ash constituents while the human blood requires more than 8 percent. Thus it becomes clear that — when by adding equal quantities of water the salt content is reduced to 3 percent — the lymph and blood saps are correspondingly undersupplied and so cannot keep the nerve material within limits. Worms originate in the intestines and for the nerve substance the salt deficiency of the blood causes cramp phenomena, nerve ailments, etc. It should also be mentioned that scrofula and rachitis also result from an insufficient content of ash constituents and can be cured particularly by biologically-produced (from ground rock) plant food.

With these few examples I only wish to point out that it is highly necessary to come to a proper understanding of the significance of the *mineral tension materials* for our organism. In the meantime, *progressive degeneration* increases so that rheumatism, neurosis, heart disease and cancer have become enemies of public welfare. World history teaches us where this degeneration leads to.

Causes of sickness only exist in the conception of microbe hunters and chemists in the pharmaceutical industry because, according to Speransky: "Bacteria are not the instigators, but only the indicators of the sickness." More study of the chemical processes of life is *necessary*. Indeed, *chemistry* forms the basis of all knowledge of nature and it gives us the key to understand all events in life.

Glauber's Salt Kills Fever Heat. The *dissolving* and *liquifying* power of soda is evident when one treats blood spots in linen with soda (sodium carbonate);

the coagulated blood dissolves. Or we heat cheese curd, i. e., the coagulated or thickened part of milk, with water in which soda is dissolved, then the cheese dissolves therein, as soda prevents the thickening of milk. Besides the carbonate of soda the *sulfate* of soda also has this specific property to dissolve blood fibrin. At the end of the 19th century it was an established practice to use Glauber's salt (sodium sulfate) in all kinds of *inflammatory* conditions (inflammation of the lungs, of the thorax pleura, of the brain, etc.) to *dissolve* the *clotted blood* in the hair-thin capillary vessels which is the real *cause* of the inflammation.

When a temperature increase of the body becomes apparent we not only speak of fever but call it, symbolically "inflammatory condition." Inflammation becomes understandable when we think how *cold* first contracts the minute blood capillary tubes, causing the blood flow therein to slacken. Since new arterial blood continues to flow while the cold inducing the capillary contraction lasts for a certain time, a stagnation of the contracted blood (stasis) is the natural consequence. But stagnating blood is also subject to the coagulation process in a similar way *within* the arteries. Blood let from an artery, for example, coagulates, forming hard fibrin.

Since *all* organic substance is constantly moving and changing, the coagulation process is followed by a chemical decomposition. As a result of such disintegration *ammonia* is liberated from the blood, having a *paralyzing* effect on the nerve functions. At the same time a physical symptom in the form of increased heat *(fever)* accompanies this chemical disintegration because the separation of the protein group into fragments *liberates* the same amount of heat as became chemically united under the sunlight during the plant growth. (This, my simple and correct physical explanation of the cause of fever heat has not yet become universally understood.)

Please be mindful of the fact that any beginning fever chill is always a proof that somewhere in the capillary region the blood circulation is stagnating. This chemical action (stagnation) once begun will not stop by itself, but will extend its sphere of operation if sufficient time is given. The fact that a chemical process requires time is of particular importance in *therapeutic* treatment. So the stagnation must be *resisted at the onset,* the same as a fire must be extinguished right away at the start instead of waiting until it blazes through the roof. Unfortunately, the latter procedure in the art of healing is too often the case. One waits to see whether a gastric fever or inflammation of the lungs or brain can be recognized; then the book of prescriptions is consulted to find out what science prescribes in such cases. Thousands of adults suffer from hearing and speech defects because measles and scarlet fever in childhood were not promptly recognized and the fever killed. All this is due to lack of understanding of the chemical processes of life. The essential point to remember is to *act quickly enough* to prevent chemical decomposition in no matter what sphere.

Sodium sulfate performs an excellent service in cases of inflammation. When a weak solution of it is taken up by the lymph vessels and transported into the blood, the fibrin clots become dissolved and fluid and the blood circulation finds a free path. Thanks to this property sodium sulfate was named *"Glauber's Miracle salt"* after Glauber, the first physician who produced and prescribed it. However, the fashion of the day together with the pharmaceutical industry dominates the art of healing, so Glauber's salt being too inexpensive and simple a remedy has been supplanted by the expensive antibiotics. Many a physician does not know that it possesses fibrin-dissolving power as no word is heard about it from the university chairs; only as a cathartic is it still known. In its latter use it has the advantage of relieving the digestive tract of its protein-filled feces so that the blood is no longer needed in the arteries and veins for digestive purposes and can take part in the general blood circulation.

The ash-free "wonder drugs" can bring the fever down since they narcotize and paralyze the nerves, yet serious reactions can occur from the use of these drugs

such as bleeding of the kidneys, thrombosis, sudden anemia, destruction of the white blood cells, etc. Their indiscriminate use makes the body less resistant to disease and they tend to become ineffective in times of subsequent need.

Not so with the use of the *two universal medicines* provided by Nature: Glauber's salt as a beverage and vinegar to wash the body, which make impossible the spreading of most of the acute diseases. These do not treat the symptom only; on the contrary, they provide the *whole* organism within and without with *new* electric tension and this is by far the most natural and simple way without any harmful side effects. Glauber's salt is available at all drugstores and water and vinegar are handy everywhere, so that the housewife can immediately apply this simple naturopathic treatment at the first sign of fever until the family doctor is called.

Repeated rubbing of the whole body with ordinary table vinegar bestows fresh electricity on the skin and to the terminations of the nerves. If vinegar is not available, washing the body with water and soda will help, as proved by the famous European hydropathists Vincent Priessnitz and Sebastian Kneipp. For infantile paralysis repeated *hot* water packs are advisable.

A solution of one teaspoonful each of Glauber's salt and common salt in one quart of warm water with lemon juice and sugar, used as a beverage, will arrest the chemical decomposition attending fever and inflammatory complaints. And as all salts act as electric exitants, the electric fluid instead of disappearing will be materially increased. The chemical explanation of this fact is very simple and as follows:

In the muscle substance creatine there is intermolecularly embedded sarcosin or hydrocarbon-gelatine sugar. The same is the case in leucine and tyrosine from which chyle and thence the lymph are formed and of course also in the gelatine of the blood. Glycocol, gelatine sugar COO CHH NHHH, possesses the faculty of uniting chemically with salts, e. g., Glauber's salt (sodium sulfate) so that the soda fixes itself to the carbon dioxide of the glycocol and the sulfuric acid to its ammonia. In this way the glycol-protein group is doubly anchored and consequently rendered safe from disintegration. Please read this twice. You will never regret it.

Physiological salt water, the natural blood transfusion. Still better than Glauber's salt is a mixture of salts corresponding to the composition of the blood according to the analysis of the blood salts made by Denis. This contains phosphates, sulfates, hydrochlorides (sea salt) and carbonates of potash and soda. All these salts form combinations with the glycol of the various parts of the body and with the urea of ammonia. Such natural salts of the blood preserves the flesh substance from decay and putrefaction, i. e., from chemical disintegration.

By drinking this physiological salt water (the exact dosage is: 120 grains of the salts dissolved in one quart of water), the most natural means of transfusing blood is provided. The lymph is at once electrified and rendered capable of resisting chemical decomposition and the whole organism is beneficially affected, as the electricity passing along the walls of the chyle vessels passes into the entire system, the effect on the patient becoming immediately visible. And this weak solution of salts does not introduce anything of a foreign or antibiotic nature into the body. On the contrary it adds substances that are absolutely indispensable, as at least 1/4 ounce of salts is passed off by the urine every 24 hours as a consequence of the oxidation caused by breathing and must be restored to the system, or the amount of body electricity will decrease. Hence, it is a beverage suitable for every condition.

Physiological earths contain: calcium, magnesium, potassium, sodium, iron, manganese united with phosphoric acid, sulfuric acid, carbon dioxide, silicic acid (magnesium trisilicate), chlorine and fluorine. It is a proven mixture for healthy blood formation, for the gradual restoration of strength and health following sickness. Take 1/4 teaspoonful two or three times a day in milk or soup.

When we keep in mind that our blood

protein is essentially a calcium-*sodium*-sulfur albuminate and that our normal blood serum, besides soda combined with organic acids, contains *twice as many sulfates* as phosphates, then we begin to understand that our blood and lymph albumin *coagulates all the easier* when its content of soda and sulfate salts has become insufficient to keep the blood fibrin liquid. We can observe that children supposedly well-nourished, getting plenty of meat, become the first prey of diphtheria, scarlet fever, paralysis, etc.; whereas apparently needy children eating enough *potatoes, vegetables* and *whole-grain cereals* remain resistant to childhood diseases. The explanation is that meat contains mostly potassium phosphate and the small amount of sulfate salt in meat is but a 70th to 80th part of the phosphate salt, considering that normal healthy blood must contain *twice* as many *sulfate* as phosphate salts.

As long as we had no synthetic fertilizer this was not the case, so that cow's milk no longer possesses the same old wholesome quality as in the past — therefore the feared children's diseases. In milk the proportion of salts is just as unfavorable as in meat (1:80), so that milk not coming from mountain cows scarcely can be regarded as a sufficient nutriment for the entire *first* year of life. However, it is true that the abundance of phosphates benefits the growth of the brain, spinal cord and the bones.

Barley and *oatmeal soups* made from whole grain with plenty of potatoes, vegetables, fruits and some common salt prevent diseases, provided the soil is not fertilized with nitrogen, potassium and phosphoric acid, but with *new* earth in the form of ground primeval rock.

Sodium Sulfate (Glauber's Salt). Our bile fluid is a combination of fatty acids (cholesterin) with ammoniacal blood gelatine as well as sodium carbonate and sulfate. In our physical economy the bile acts like soap as is shown by bile being used to wash grease spots out of silk. When the bile empties into the duodenum, it is able to transform the eaten fat substance into such a fine emulsion milk (chyle), that the microscopically soluble and diffusable fat drops are assimilated through the endings of the lymph vessels and can be transported into the blood vessels. To this are added the decomposition products of the protein of the stomach digestion (peptone, leucine and tyrosine), which together with the fine fat drops again slip through in order to get where they are needed for the renewal of the oxidized tissue cells.

It is for this purpose that a soda soap is required, so it becomes clear that our food must contain sulfur and soda, otherwise no sulfur-soda-containing blood protein can be newly formed. And out of blood albumin *deficient* in sulfur and soda no sulfur-soda-needing bile can result. Without sulfur no normal blood albumin, *without sulfur no bile strength to regulate digestion.* Without phosphorus no thought, without sulfur no *fertility* (hormones). The fish in the sea have astounding fertility. Just think of the inexhaustible masses of herring and the innumerable fish roe. The favoring factor lies in the salt content of the sea water, which always contains calcium sulfate (gypsum) and magnesium sulfate (Epsom salts). Experienced veterinarians have been aware of the healing power of Glauber's salt, Epsom salts, and iron vitriol for generations. Also, Dr. Kurella's *chest powder* consisting of senna leaves, licorice root, fennel seed, brown sugar and *sulfur* is a proven medicine for coughs, constipation and hemorrhoids.

Among the *bile* constituents our nerve substance (lecithine) plays an important role. When we students were shown the bile demonstrating object I promptly recognized it as *fat substance* but in union with ammonium phosphate. Even the apparent chemical formula which calls for glycerin phosphate, trimethylamin, palmitinic and stearic acid would not mislead me. Being visibly a fat substance the question was only what still was present aside of the fat, the result was a simple subtraction:

Namely

$2\ (C_{21}\ H_{42}\ O_4) = C_{42}\ H_{84}\ O_8 =$

tallow fat or glycerine stearate.

The nerve fat (lecithine) $C_{42}\ H_{84}\ O_9$ NP is distinguished solely by a plus of ONP. The result is then $PO_3\ H$, HHHN = am-

monium phosphate. During the condensation of the ammonium phosphate with tallow fat the missing 2 water were separated from 2 glycerine.

This nerve substance (lecithine) is contained in the bile fluid in partly oxidized form. The chemical remainders are cholesterin and biliverdin. Again the bile fluid contains compounds of tallow fat with gelatine and sodium sulphate-carbonate, which the theoretic chemistry calls paired compounds of sodium taurocholate-glycocholate. These fat compounds too are partly oxidized tallow fat, having lost a certain number of hydrogen atoms. This explains the peculiar iridescent green brilliance of oxidized oil, as occasionally found in half empty bottles in the pharmacist's cellars. The iridescence is caused by the carbon having lost its hydrocarbons through oxidation. Professor Hermann drew our attention to this characteristic iridescence of the bile acids while passing the demonstrating object around the auditory, but as said before I was probably the only student whose chemical knowledge permitted me to recognize from the iridescence the character of the bile acids to be oxidized fat substance and to draw its conclusions.

The bile not only contains sodium glycolate COO CHH HHO but also ammonium sulfate united with hydrocarbons (taurine) resulting from a chemical change of sodium sulphate with gelatine. Because gelatine contains 6 hydrocarbons united with 2 ammonium carbonate, this group can split into 5 hydrocarbons with ammonium carbonate (leucine or gelatine) C_5 H_{10}, COO, NHHH and into 1 hydrocarbon with ammonium carbonate (glycine) CHH COO NHHH. The latter substance (glycine) therefore is not produced by the liver as erroneously taught, but is already present in the blood gelatine.

Sulfur is of special importance since within 24 hours one-and-a-half liter of urine is usually excreted, containing nearly $^2/_3$ gram of sulfur in the oxidized form of about 4 grams of sodium sulfate. This sulfur loss is at the expense of the blood gelatine, the bone gelatine, the sinews which are the foundation of the elastic lung tissue, the liver, the intestines, the kidneys and all glandular organs. Without one percent sulfur no new gelatine substance can be formed, without sulfur no new protoplasm at all, no new blood gelatine can be created. Rubber gets its elasticity only after it is mixed with sulfur and vulcanized under heat; similarly, the elasticity of our lungs rests on the sulfur-containing gelatine substance, which permits the expansion of the lungs when inhaling and contraction when exhaling. Without sulfur no digestive bile (taurocholic sodium) can be separated from the aorta blood. If sulfates are lacking the entire body is *sick*. Sulfur helps to form the *cement* which protects the nitrogenous hydrocarbons of our body from premature decay and prevents swelling of the lymph glands, eczema, catarrh of the bronchial tubes, stomach and intestines and protects against obesity, nervousness, diabetes, consumption and cancer.

Sulfuric acid has the power to displace the phosphoric acid in its compounds. Due to this chemical law the sulfur-*free* nerve substance separates from the sulfur-holding blood albumin and new phosphorus oil separates from the lymph vessels in order to supply the nerves with new material. If there is a deficiency of sulfur the whole man is sick. Then the lymph glands and lymph vessels are tensionless and their juice delivers swellings and tumors, such as leprosy. Since the gelatine substance of deer antlers contains sulfate of ammonia oil, this explains the healing force of antler jelly in *lymphatic* diseases and so many *nervous* afflictions, which result from an insufficiency of ammonium sulfate in the lymph vessels so that the renewal of blood and nerve material stops. Incidentally, ammonium sulfate is produced within the liver from sodium sulfate (Glauber's salt) and carbonate of ammonia oil (leucine), which are chemically united in the blood gelatine, but disintegrate under the higher temperature in the liver.

Upon such a wandering back and forth of the mineral constituents rests a great deal of the normal and also the morbid processes of life. Just think of rheu-

matism and leprosy and of the dreaded cancer and heart diseases — in all of these cases there exists a disproportion in the mineral content of the blood. The *sulfate* and *phosphate* compounds offer an extraordinary *tensional potency* upon whose harmonious functioning so much depends, whereas in the nerve substance the ammonia oil is combined with *phosphoric* acid, in the bile fluid taurine (ox bile) it is united with *sulfuric* acid.

In the ashes of *horse* meat we find 46.74 percent phosphoric acid against 0.30 percent only of sulfuric acid, combined with 39.40 potassium, 4.86 soda, 3.88 magnesia, 1.80 calcium, 1 percent iron oxide plus 1.47 percent sodium chloride (common salt). On the other hand, *beef* ash contains but 34.36 percent phosphoric acid yet 3.37 sulfuric acid, 8 percent carbon dioxide and 2 percent silicic acid, all these acids united with 41.30 potassium, 3.31 magnesia, 1.73 calcium, 1 percent iron oxide plus 4.86 percent sodium chloride. Therefore beef has eleven times as many *sulfates* as does horse flesh, however only $^2/_3$ as many phosphates and three times as much sodium chloride.

The study of the changing salt components of protoplasm leads us without fail to the primeval process of creation where the original atmosphere of *phosphorus-sulfur*-cyanogen united with the sea water, thus forming protoplasm substances in countless chemical combinations.

Since food produced from an abundant use of nitrogen fertilizer contains *no* sulfur and the tensional electricity-exiting iron earths and salt parts are lacking in the blood, it is clear than an *in*sufficient amount of new red blood discs is formed to replace those consumed by breathing, with the result that not enough oxygen sustains our bodily combustion. Therefore, if we want to stay healthy, our food must restore the daily loss of sulfur. With meat, white flour, white sugar, wine and beer, this cannot take place. However, with plenty of vegetables, potatoes rich in minerals, whole grain bread, sauerkraut, fruits, etc., also the leek vegetables — onions, garlic, leek and chives, which are especially rich in sulfur — the sulfur loss is replaced provided they are grown on ground rock-fertilized soil.

How contradictory the modern trend is away from these sound health principles is shown in a full-page advertisement which appeared in October 1965, in one of the largest American magazines, reading in part:

"The discovery of sulpha drugs was a most important step forward in medical history for fighting such dreaded diseases as epidemic meningitis, pneumococcal pneumonia, puerperal fever and other severe infections ... Less and less dangerous diseases through better and better drugs — we call this progress."

What this advertisement fails to tell the people is the chemical truth that the most natural, the most economical and the safest way to supply our daily plant food with sulfur and the other necessary minerals, is the use of *ground rock fertilizer* — granite, gneiss, porphyry, gypsum — spread on the soil as discovered in this book by Julius Hensel.

THE MIRACLE

Bread from Stones by Fertilizing the Soil with Ground Rock and Compost. The New Testament tells us of the miracle whereby a multitude was fed with five loaves of barley bread and two fishes. Yet this miracle is being repeated each year. We drop one barley grain in the soil and sixty grains appear at the top of the stalk. We are nourished by it and so much is left over that we can fill the granary and entrust Mother Earth with new seed grain.

Is this an inexplicable miracle, or is it not really a miracle because we are used to its sight and its regular reappearance? Truly it is a miracle inasmuch as a considerable piece of heaven is effective on earth. The heavens consist of blue ether gas in universal space (the very lightest and thinnest gas), which

chemists call hydrogen because it was first discovered in water. However, the same kind of gas is present in oil gushing from the earth, so a better name for it would be "ethergen" instead of hydrogen.

When hydrogen chemically combines with its eightfold weight of oxygen, the two gases burn violently, forming water. Therefore, water is the product of a combustion or oxydation and no longer is burnable. Now in "combustion" we must not imagine that something vanishes, on the contrary something is being added, only it takes another form.

For instance, oil is a chemical compound of hydrogen with its sixfold weight of carbon. Both hydrogen and carbon are burnable since they readily combine with oxygen, e. g., 14 grams petroleum combine with 48 grams oxygen forming 62 grams of the combustion products which consist of 18 grams water HHO and 44 grams carbon dioxide COO. These combustion products are no longer visible to the eye because they are gases and mix with the air. The water can be made visible again by bringing a bottle filled with cold water into a warm room, because the water vapor exhaled by man dissolves in the warm room air and settles dew-like on the cold glass. In the same manner in the evening when the sun sets on the horizon, the water vapor sinks as dew on the soil, after being kept dissolved in the air by the sun rays. The carbon dioxide COO automatically sinks to the ground because it is heavier than air.

Now let us return to our miracle whereby one barley grain is multiplied to sixty grains on the barley spike. How can this miracle happen? Here follows the explanation in plain chemical language:

The first step in plant growth is calcium oxalate. All soil usually contains some calcium, if not, it should be supplied. Yet growth can start without calcium if potash is present in the soil. Potash can be extracted from the ashes of burnt wood by washing and condensing its lye in which potash and carbon dioxide are combined. But how does potash get into the wood? All mountains on whose soil forests grow consist of primeval rock in which potash is united with clay and silica, forming molten glass flux. This peculiar glass flux is called *feldspar* by geologists. No doubt it also contains soda, calcium and iron, but most feldspar at least contains potash.

In the cool of the evening water vapor together with the heavy carbon dioxide gas of the air sinks to the earth as dew. Carbon dioxide is about twice as heavy as the surrounding atmosphere which consists of about four volumes nitrogen and one of oxygen. In this way potassium carbonate or calcium carbonate results overnight. When in the morning the sun rises over the horizon the electric sun rays produce *oxalic acid* from carbon dioxide and dew:

$$\begin{array}{l|l|l} \text{COO, HHO} & = \text{COOH} & \text{HO} \\ \text{COO, HHO} & = \text{COOH} & \text{HO} \end{array}$$

This oxalic acid at first remains combined with calcium or potash and is found in the plant juices of various species of oxalis. It is the beginning of all organic formations, the first growing process. From this it is clear that the origin of all plant growth depends upon earthy substance.

In the air *no* plant growth can take place; solid earth, i. e., stony material is absolutely necessary. When rain water which has absorbed nitrogen and carbon dioxide penetrates a rock fissure, it fructifies the rock making it capable of supporting plant growth. The carbon dioxide unites with the basic rock components, forming bicarbonates of calcium (chalk) and magnesia earth which dissolve clearly in water. The new compounds then assume manifold positions within the water drop, performing a counter dance, so to speak, as in a ballroom.

All primeval rock — granite, gneiss, porphyry — contains in various proportions and groups the potash base *potassium,* the soda base *sodium, calcium* (chalk), *magnesium, iron, manganese,* united with *silicic acid, sulfur, fluorine* and *chlorine,* all together united with *aluminium phosphate* (clay). These primeval rocks, along with basalt and lava present an inexhaustible storehouse of the most *natural plant food.*

Thus Life Begins. Our forefathers believed that the "origin of life" was attributed to the cell-less *water drop,* because the sea water contains immense quantities of fish, mollusks, crustaceans, seaweed, etc. Indeed, all animal and plant forms consist on an average of about three-fourths water, so when muscle flesh is dried only the fourth part of its weight is left. Although water *enables* visible motion and life, it cannot by itself produce such creations as the giants of the forest or an elephant body; something must be dissolved in the water which serves the organic building as scaffold or support, namely, *stony* material. Only the rock stone material, the primeval rocks, supply the possibility of creating such a wealth of forms as the plant and animal shapes present.

By chemical union of the rock components with the nitrogen N in the air, plant protein is produced. But it depends upon the kind and quantity, plus the special symmetric grouping of the participating minerals, whether a birch tree, beech, oak, maple, linden or heath shrub will rise towards the light under the electric influence of the sun rays. Our forest trees still grow in the same way, as anyone can observe in the mountains if he wants to see. By the weathering process the rock material gradually decomposes and enriches the soil.

It is just as necessary to feed the soil and crops as to feed cattle. *Ground rock fertilizer* made of granite, gneiss, porphyry, feldspar, quartz, mica, basalt, lava, produced on an industrial basis in many parts of the land, is the most natural means to replenish the mineral supply of the soil.

Every crop removes permanently a certain part of the mineral supply, being carried away from the soil in the form of field produce hay, straw, vegetables, seed, wood, etc., all of which contain *mineral ashes.* Eventually, the soil consists only of clay, i. e., aluminium silicate-phosphate. Common sense tells us that the removed minerals must be replaced in the exhausted soil in the form of ground rock mingled with animal and plant compost so that the soil can again bring forth wholesome food plants. Common sense also tells us that if *all* minerals of the primeval rocks are needed for wholesome plant growth, potassium and phosphoric acid cannot suffice, even less can liquid manure and nitrogen fertilizer replace the rock minerals.

To obtain nitrogen God has made it easy for us. He has endowed man with the inexhaustible air ocean over our heads. Does not the grass of the prairies and pampas in the Americas and the wild grass grown on stony soil in the Alps feed the cattle, produce milk, beef and hides, the oak forest produce tons of protein-containing acorns and the hickory tree supply protein oil and starch-holding nuts since Adam and Eve's time without any artificial nitrogen fertilizer?

Some examples: Since Roman times, the farmers of southern *Switzerland* have brought glaciers water containing *stone meal* down to their soil and vineyard by an extensive net of small canals.

Egypt's fertility, thanks to the *Nile mud* being washed down each year from the granite rocks and highlands of *Abyssinia,* has been known as long as the memory of man. When planning new dams along the Nile the five-thousand-year-old experience should be kept sacred so that the indispensable mud can reach the valley each year and thus maintain its soil fertility. To trap the Nile mud by means of dams at the entrance to the land would be a catastrophic interference with Nature's providence. It is of vital importance that both irrigation and mud fertilizing be maintained each year.

Analysis of Nile mud by Dr. E. M Xilinas in *The Nile, Its Mud and Egyptian Earth,* (F. E. Noury and Son, Cairo, 1936):

Evaporation loss	9.10%
Silica	48.50%
Clay (aluminium)	19.35%
Iron	10.47%
Calcium (chalk)	3.31%
Magnesia	2.95%
Titanium	2.46%
Soda	0.81%
Potash	0.98%

Manganese	0.23%
Phosphoric acid	0.24%
Carbon dioxide	1.04%
Sulfuric acid	0.42%
Nitrogen	0.125%

Please note the small content of nitrogen 0.125%, phosphoric acid 0.24% and potash 0.98%, to which Egypt owes its wonderful fertility for thousands of years, whereas artificial nitrogen fertilizer contains at least ten times as much nitrogen, most of which is washed away by the rain and lost. Similar proportions of minerals are also contained in the great rivers HwangHo and Yangtze in China, the Amazon River of Brasil, etc., because they all originate from weathered primeval rocks of the mountains.

The Amazon River is fed from the melting Andean snows and glaciers, and these, plus the 90 inches of tropical rain that fall each year, can make the river below Manaus rise 60 feet and flood an area the size of Poland. The tangled trees of the Amazon Valley make up 25% of the earth's forest and its basin, covering an area nearly as great as continental United States, is filled with almost every conceivable kind of vegetation and mineral in the world.

How could the overpopulated lands of *China* be fed if their large rivers Hwang-Ho and Yangtze with their *mud* and sediment coming from eastern Tibet did not flood their rice fields each year? With a network of more than 200 000 miles of canals the mud water is distributed over the lowlands, with utmost care all animal and plant waste is mingled with the mud and canal greens and as decomposed compost it is spread over the fields. Thus their soil has been kept in unchanged youthful productivity for thousands of years and so the natural replacement of consumed humus and minerals is taken care of in the most natural biologically correct manner. (See *Farmers of 40 Centuries* by Dr. F. H. King of the University of Wisconsin, 1911, and Sir Albert Howard of India.) Dr. H. W. Adolph of Cornell University reported in October 1946 in the Journal of the American Dietetic Association: "The Chinese farmer consumes but 2500 calories of food daily, consisting of 88% *whole* rice with some soy beans, 5% vegetables (onions), 4% fat, 3% eggs and meat, and for 4000 years he has been used to hard labor in the tropical rice fields. Nevertheless, his race has multiplied exceedingly, he is of extraordinary resistance and is much happier than we are." If man would return to nature and obey its laws he would soon free himself of his endless chain of physical and mental afflictions.

Clover can grow in three ways: a) directly out of mud washed down from the mountains, b) indirectly out of the ashes of trees whose roots have extracted the soluble minerals from the stony soil, since it is a known fact that abundant clover growth takes place when *wood ashes* are strewn on the soil, and c) out of clover seed. In other words, the actual deciding seed substance is the stony material with its constituents of potassium, soda, calcium earth, magnesium, earth, iron, manganese, silica earth, fluorine, phosphorus and sulfur, which are united with carbon dioxide, water and free atmospheric nitrogen.

A generation ago it was thought that only peas, beans, clover, alfalfa and other leguminous plants had the power to assimilate free nitrogen into protein by means of their root nodules. Later it was found that the *chlorophyl* (green matter) of *all* green leaves and grass contain glycolic acid COO CHH HHO as a part of the sugar group. The dissolving power of the glycolic acid causes it to chemically combine with the air nitrogen, forming ammonia NHHH, and separating water HHO. The result is *gluten sugar* (glycolprotein) COO CHH NHHH and with its help all cellulose (woody part of plants) includes minerals with which it is chemically united. If this were not so how could the prairie cattle live and produce protein-holding milk and beef?

Feldspar contains potash, soda, calcium, iron, manganese and aluminium united with fluorine and silicic acid. *Mica* contains magnesia silicate, fluorine and some of the feldspar components. *Quartz,*

rock crystal and pure sand are mainly silica, much used in glass manufacture. Since all bones and teeth contain about 2 percent calcium fluoride plus calcium-magnesium phosphate, soda and sodium chloride, it is clear that these primeval *rocks* are of *prime significance* in the growth of healthy food plants. Indeed, they furnish an inexhaustible supply of plant food which together with rain water and sunlight transform into sugar and bread, milk and meat, to secure our life, health and vitality.

Primeval rock contains about 80 percent silica clay which has the advantage that for a certain length of time it holds together the water moisture which is indispensable for plant growth, while at the same time it prevents the quick solution of the akalies united with the silica clay and chemically enclosed by it. Otherwise the corrosive action and disturbance in the slow-growing process of the plants would be unavoidable. Certain theorists misunderstand this wise arrangement of the creative power because they recommend highly *concentrated* pure plant foods as fertilizer, e. g., potassium phosphate, Chile saltpeter, ammonium sulfate, etc. Poor blind souls! It would be about the same as if fierce sunlight were to shine on the plants day and night.

From the giants of the forests we can study the enormous productivity of wood, leaves and protein-containing fruits (acorns, beech and hickory nuts, seed of pine cones, etc.). It is evident that the big trees with roots several feet down in the soil are in a better position to extract the basic minerals from the rocks than the tender grain roots which reach but a few inches into the soil and must complete their growth within a few months. It follows that the assimilating power of the root fibers require loose soil and finely ground rock into which rain, nitrogen and carbon dioxide can penetrate.

Potato Cultivation. The potato *tuber* has the following ash proportions: potash 56, soda 1, calcium 2, magnesia 4, phosphoric acid 18, silica 2, hydrochlorid acid 3, sulfuric acid 6. The ash proportion of the leaves is almost the reverse: potash 7, soda 1, calcium 55, magnesia 27, phosphoric acid 6, silica 5, hydrochloric acid 4, sulfuric acid 6.

How clearly this shows the trend of separation between potash on the one side and calcium magnesia on the other. Calcium and magnesia in their solutions with acids become precipitated by potash, that is, the potash seeks to separate them as far as possible when *water* collaborates. Therefore we find in the *tubers* much *potassium* cellulose and potassium phosphate but little calcium and magnesium *sulfate*. The leaves, on the other hand, contain much *calcium* and *magnesia* cellulose with relatively little potassium *phosphate* and much *calcium* sulfate.

Upon this visible opposition between alkali-cellulose in the tubers and earth-cellulose in the leaves depends the potato growth. Therefore the belief that an abundant leaf growth means that the strength is consumed by the leaves is quite unfounded. The more leaves grow *over* the earth the more tubers grow *under* the earth. The relationship between leaves and tubers is in a similar constant proportion as the cartilage is to the bone and as the egg albumen to the yolk.

The ash analysis of the mushroom and fungi shows that they contain earth *phosphates* almost exclusively, little quantities of chloric acid, and only small traces of earth *sulfates*. Further, the mushroom and fungi perish when they come into contact with earth sulfates. In this case the obvious conclusion is that in a wet summer the potato tubers undergo a metamorphosis into mushroom protein *(Peronosphora)* resembling the destructive wood fungus and the grain fungus (ergot fungus *Claviceps purpurea)*. Under such conditions the magnesia sulfate of the tubers is partly washed away by the continous rain and as the counter tension of the sulfate decreases the mushroom mycelium increases in proportionate quantities.

A further factor which affects the transformation of potato protoplasm into peronospora protoplasm is the *diminishing power of the sun.* In accordance with the change in temperature a dis-

placement of iron vitriol and common salt by iron chloride and Glauber's salt, or vice versa, can take place. Similarly, magnesium phosphate and calcium sulfate can undergo an exchange-shift into magnesium sulfate and calcium phosphate when there is low temperature and an abundance of water. As a very soluble salt the former is easily lost in the protoplasm mixture by exosmosis (i. e., diffusion of the solutions through a semipermeable membrane). The potato peronosphora loses its germinating power in winter and this proves that a metamorphosis of the tuber protein takes place.

We have recognized the fact that the tensional power of the *sun* can be substituted by the tensional power of the *earth* for the purpose of ensuring solidity to the organic compounds. Since the *sulfates* in the potatoes and the potato leaves are of major importance we can ensure the tissue tension of the potato protoplasm, in the case of long spells of rain, by supplying a sufficient quantity of calcium sulfate to the potato fields as we do to the vineyards. Such fertilizing with calcium sulfate *(gypsum)* to protect the potato crops from peronosphora must, however, take place in spring *before* sowing, otherwise it is too late. In any event, the proverb, "An ounce of prevention is worth a pound of cure", is also applicable to potato diseases.

Calcium sulfate is also a protection against the *Colorado beetle* which is produced by the potato shrubs similar to the way grapevine roots produce the vine louse *(Phylloxera)*. The Colorado region of the United States is covered with rubble from the Rocky Mountains, which consists of porphyry rock containing only a small quantity of sulfuric compounds. This clearly explains the origin of the beetles since *sulfur is poison to insect protoplasm*. When potatoes are always grown on the same field the soil will gradually become depleted of calcium sulfate and alkalies and if no remedy is provided by fertilizing with calcium sulfate, the continual heat and drought will intensify the transformation of the protoplasm into the potato beetle.

The effect is the same if we apply gypsum or calcium carbonate with magnesium sulfate (kieserite). In any case, magnesia is also to be regarded as an important ash component for the potato. Bone meal or phosphorite is calcium phosphate; dolomite is calcium-magnesium carbonate; iron vitriol is iron sulfate (green vitriol); kieserite is magnesium sulfate; kainite is a natural salt of potassium-magnesium sulfate. According to whether porphyry, granite or gneiss is available, the following mixtures of special mineral fertilizer for potatoes are recommended:

I	
Porphyry	100 parts
Dolomite	10 parts
Bone meal or Phosphorite	10 parts
Gypsum	10 parts

II	
Porphyry	100 parts
Calcium carbonate	20 parts
Bone meal	10 parts
Kieserite	20 parts

III	
Granite	100 parts
Dolomite	10 parts
Bone meal	10 parts
Gypsum	5 parts
Dried Glauber's salt	5 parts

IV	
Granite	100 parts
Calcium carbonate	20 parts
Bone meal	10 parts
Kieserite	5 parts
Dried Glauber's salt	5 parts

V	
Gneiss	100 parts
Dolomite	15 parts
Bone meal	10 parts
Dried Glauber's salt	10 parts
Iron vitriol	5 parts

VI	
Gneiss	100 parts
Calcium carbonate	20 parts
Bone meal	10 parts
Kieserite	10 parts
Dried Glauber's salt	10 parts
Iron vitriol	5 parts

All three kinds of primeval rocks, porphyry, granite and gneiss, including their varieties, syenite and slate, contain certain amounts of phosphate of calcium, or clay, finely distributed. Sometimes even calcium phosphate together with calcium fluoride (apatite) has been crystallized out of the glass flux. On this account the addition of bone meal is not needed for most kinds of soil when ground rock is used as fertilizer, especially when during consecutive years Thomas slag meal has been spread over the soil.

The addition of iron vitriol (iron sulfate) to gneiss is justified because the latter lacks iron, whereas the porphyry and granite varieties contain sufficient iron.

Sugar Beet Cultivation. On the average, sugar *beets* contain 8 percent ashes in the following proportions: potash 40, soda 8, calcium 5, magnesia 7, phosphoric acid 11, sulfuric acid 4, hydrochloric acid 2, silicic acid 3.

The *leaves,* however, contain on the average the following proportions: potash 40, soda 30, calcium 36, magnesia 33, phosphoric acid 13, sulfuric acid 14, hydrochloric acid 10, silicic acid 6. For the specific sugar beet protoplasm one must consider the total of both, namely: potash 80, soda 38, calcium 41, magnesia 40, phosphoric acid 24, sulfuric acid 18, hydrochloric acid 12, silicic acid 9.

Since all acids are already neutralized by the *soda,* potash, calcium and magnesia remain available for sugar and cellulose, namely for protoplasm *carbonate.* However, when rock carbonate or rocks in general are lacking, in which the basic minerals (potash, soda, calcium and magnesia) are contained, then *no* sugar can be formed. This explains why the fine feldspar parts, which contain the aforesaid earths united to silicic acid, are exhausted after a long beet cultivation and only silicate and phosphate of clay are left in the soil. Then new protoplasm forms are produced, e. g., *worms,* which always appear when *potash* and *soda* are lacking (beet nematodes).

The appearance of these worms always parallels the lack of sugar in the beet, because the earths form the indispensable carriers of the sugar substance which is produced from oxalate of calcium or potash. Naturally, the beet protoplasm now metamorphoses into a new form, it degenerates, it ceases to be what is understood by sugar beet. In such cases the ordinary man says: "These beets are very bad." Actually, a new kind of beet was formed. The sugar manufacturer talks much more to the point; he says to the beet farmer: "We do not want water beets, we want sugar beets." And he is quite right. In future the sugar man as well as the beet man can be helped. The farmer only has to spread on the soil fresh ground soda feldspar and potash feldspar together with calcium and magnesium carbonate and gypsum. This will not only *kill* the worms whose substance will be transformed by the earths back into vegetable protoplasm, but he will also get sugar beets again, since sugar is produced by carbon dioxide and earths.

The ashes of sugar beets have a very high *soda* content, almost half the potash quantity. This explains on the one hand the fertility of beets on soil which originates from the potash- and soda-containing porphyry, and on the other hand, the actual effect of Chile saltpeter (soda saltpeter) upon the growth of the beets. We know from the ash proportions that the *sulfates* are strongly active (3 parts to 4 parts phosphate) and it is therefore surprising that the expensive Chile saltpeter has not long ago been substituted by the really cheap dried Glauber's salt for fertilizing the beet fields.

Chile saltpeter contains on an average 33 percent soda, while the dried Glauber's salt has a content of approximately 44 percent. The latter is therefore about one-third richer in soda than Chile saltpeter and, in addition, not even half as expensive. Therefore, half the cost will produce better results. Our agricultural test stations, which cannot forget the old views, still attribute the considerable growing power of the Chile saltpeter to the saltpeter itself, because Boussingault spread the false teaching that plants are not able to assimilate atmospheric nitrogen.

Now we can observe that the heads of the sugar beets which protrude from the earth and which have the atmospheric nitrogen more easily at hand, contain 25 percent more nitrogen than the parts of the beets remaining in the soil. If the nitrogen came from the soil the reverse would be the case. Also, the part of the beet in the soil contains nearly four times more soda (23:6) as compared to the protruding beet heads. Is this not significant? The soil supplies the soda, but the air supplies the nitrogen.

At this point we arrive at some further practical knowledge as presented in the section *The Chemical History of Creation.* It is true that plants grow well in glass with a solution of potassium and calcium nitrate (saltpeter), potassium phosphate, magnesium sulfate and some potassium chloride and iron vitriol without the addition of earth carbonates, so that this led to the conclusion that *all* carbon dioxide needed for plant growth is supplied by the air. This is not only a very one-sided conclusion but truly a false one, because the experiment still requires the other completing half. Namely, it is just as true that a porous soil, in spite of its containing no nitrate or ammoniacal compounds, produces nitrogenous plants, provided that the soil contains calcium and magnesium carbonate.

The explanation of this is that carbon compounds chemically bind nitrogen and vice versa, nitrogen compounds attract the carbon of carbon dioxide. These two substances *carbon* C and *nitrogen* N which jointly result from cyanogen CN and sea water, *always attempt to reunite.* The best example of this are the poisonous blooms of the *Amygdalaceae* family and other plants which actually contain cyanogen.

After learning about the primeval union of carbon and nitrogen it is certain that sodium nitrate can take part in fertility, thanks to its content of nitrogen, but beets need no Chile saltpeter, when sodium sulfate and earth carbonate are used as fertilizers. Sugar is produced from carbon dioxide, tannin results from sugar, and tannin transforms as much atmospheric nitrogen into protein as roots, barks and leaves ever need. Even the nitrogenous alkaloids (quinine, strychnine, theobromine, etc.) result from tannin and atmospheric nitrogen. As verification for this form of creation, they are, without exception, chemically combined to tannic acid in their various modifications.

Summary: However fertile Chile saltpeter may prove to be in beet cultivation, still better results will be obtained with dried sodium sulfate (Glauber's salt), calcium and magnesium carbonate, in addition to potash-containing rock meal.

The following mineral mixtures (about half a ton per acre) as fertilizer for *beet fields* are recommended in the following proportions:

I

Porphyry	100 parts
Dolomite	10 parts
Kainite	10 parts
Phosphorite	10 parts
Kieserite	15 parts

II

Granite	100 parts
Calcium carbonate	15 parts
Kainite	10 parts
Phosphorite	10 parts
Dried Glauber's salt	10 parts

III

Gneiss	100 parts
Dolomite	10 parts
Kainite	10 parts
Phosphorite	10 parts
Dried Glauber's salt	10 parts
Iron vitriol	5 parts

Worms can also appear in the sugar beet plants if the soil is exhausted from depletion of its sulfuric earths and alkalies through many years of beet cultivation. Transformation of the beet substance then causes worms to originate.

This can easily be explained by the chemical fact that a substance can be extracted from the beetroots as well as from the beet molasses which is in closest relation to the animal nerve fat. This is *betaine:*

$$C_5\,H_{11}\,N\,OO\left\{\begin{array}{c|c|c|c|c|c}H & H & O & H & H & H\\ C & C & C & C & C & NH\\ H & H & O & H & H & H\end{array}\right\}$$

In this we recognize the chemical basic substance of the nerve component *choline,* which is produced by the betaine by oxidation (absorption of oxygen and splitting off of water). (Choline received its name from the fact that it first was isolated from the bile fatty acids however, it can also be isolated from the brain fat and the egg yolk fat.) As soon as the betaine of the beet oxidize into choline in the porous, dry soil, it only requires to be chemically united with calcium phosphate in order to produce insect nerve protein. So with an advanced position of the sun, worms are produced by the beets because alkali sulfates which would prevent the creation of insect protoplasm are lacking in the beet juice.

Since this chemical transformation also takes place causing fruit maggots and numerous other insects to be produced by plant substances, I would like to point out how the components of beetroot juice also exhibit other characteristic relationships to animal protein. In beetroots we find modified sugar substance in which a hydrocarbon HCH has been substituted by ammonia NHHH and from this, *glutamine acids* (gelatine sugar-lactic acid-anhydride)

$$C_5\,H_9\,N\,O_4\left\{\begin{array}{c|c|c|c|c|c|c}O & H & H & O & H & H\\ C & C & C & C & C & NH\\ O & H & H & O & H & H\end{array}\right\}$$ originated.

The same compound can also be extracted from animal protein by boiling it with diluted sulfuric acid. This is not surprising when we consider that beetroot protein, when it is used as fodder, forms the chemical basis for the accumulation of mammal protein where the content of sulfuric protoplasm has a favorable influence. The case is different when sulfuric earths are *lacking* in the beet juice. Then the nerve protein for the beet nematodes is created under the influence of the sun heat.

The *beet* is an earth fruit, the *apple* a tree fruit. In spite of this difference they are related to one another proportionately, inasmuch as in beet molasses in addition to glutamine acids also aspa-

ragin acid $C_4\,H_7\,N\,O_4\left\{\begin{array}{c|c|c|c|c}O & H & H & O & H\\ C & C & C & C & NH\\ O & H & H & O & H\end{array}\right\}$

is found, which has one hydrocarbon less than the glutamine acid. We can expel the ammonia therein contained by potassium and calcium or when chemically united with acids, then malic acid

remains $C_4\,H_4\,O_4\,HHO\left\{\begin{array}{c|c|c|c|c}O & H & H & O & H\\ C & C & C & C & O\\ O & H & H & O & H\end{array}\right\}$

combined with potassium or calcium, is found in all kinds of ripe fruit.

However, when there is a deficiency of potash and lime, *ammonia takes their place,* thereby promoting the creation of the following insects: cherry fly *(Trypeta signata);* apfelwickler *(apple moth);* the apple maggot *(Carpocapsa pomonella);* the pear moth *(Crocallis elinguaria);* the gooseberry moth *(Zerene grossulariata),* etc. Of course, 100 years ago, Charles Darwin was not acquainted with these chemically related connections, otherwise he would have written an "evolution-involution theory," as this is in fact a reality since we see one thing change into another.

Fruit Tree Cultivation. The same applies to fruit tree cultivation as that which is applicable to beets. Without the cementing power of potash and calcium, all kinds of fruit remain *sour.* Fruit trees, too, need ground rock and calcium carbonate, otherwise they transform into worm protoplasm and perish.

The study of the ash components in wood, in fruits and in tree leaves, leads with such regularity to the separation of a larger group into *three* parts — leucine, tyrosine and urea — that one must be deliberately blind not to recognize also in tree growth the dominating universal law of embryogeny which always in-

dicates a threefold separation; namely, 6 cyanogen and 12 water transform into 3 tannin and 3 ammonium oxalate; 6 calcium carbonate and 6 water transform into 3 calcium oxalate.

When we consider the forest tree richest in ashes, that is, the beech, we can study how the tree lifts the minerals from the soil by its cambium sap and *hurls them away* to transform them into leaves and fruit. However, in the leaves and fruits the acids and bases react to one another in various proportions: The leaves contain most of the *silica,* the fruits contain but *little* of it. In other respects the leaves apparently correspond to the egg albumen out of which the "egg yolk" of the fruit is separated. The wood reacts to the leaves in the same way that the leaves react to the fruit.

The following proportions of ash components appear in the *beech tree* which I consider to be a fruit tree on account of its beech nuts:

	Wood	*Leaves*	*Fruit*
Phosphoric acid	0.1	2.4	5.6
Sulfuric acid	0.1	2.1	0.6
Silicic acid	0.3	19.5	0.5
Potash	0.9	3.0	6.2
Soda	0.2	0.3	2.7
Calcium	3.1	25.8	6.7
Magnesia	0.6	3.4	3.1

In a similar way the polar or antagonistic relationship between alkalies and minerals, which we have already learned about in vines, in potatoes and in beets, repeats itself in all plants, particularly clearly in *trees.*

In leaves we always find such a wealth of calcium and magnesium potash and soda that it many times exceeds the mineral content of the wood. Without such a wealth of minerals in the *leaves,* the *fruit* could not develop. And if the soil in which the tree grows did not contain such minerals, no leaves would be able to grow. Moral: Whenever a fruit tree fails to bear fruit, give it feldspar and calcium carbonate to replace the removed minerals.

Grain Cultivation. All conditions for successful agriculture can be fulfilled by human effort, especially by suitable soil material and efficient irrigation. One thing we do not have in our power, however, and that is the *sun heat* and this *is* the most valuable and effective of all ingredients; because without sunshine neither the grape, nor the potato, the beet, the apple or the grain can ripen. All efforts of the farmer are in vain.

Corn requires much calcium sulfate; furthermore, of all types of grain it requires the most potash but the least soda. So if it is to grow well it needs gypsum and potassium feldspar.

Oats, contrary to corn, requires a great deal of soda and more silica than any of the other grains. *Rice,* however, requires much magnesia of which oats contains but a little.

Wheat and *rye* require phosphoric acid in particular, but very little sulfuric acid. It is therefore certain that the use of human excrement which is rich in phosphates will bring good results provided it is composted with earth, ground rock and plant waste. This is of course to be supplied only to barley, rye and wheat fields.

On the basis that we must consider the ashes of grains together with those of the straw — as is necessary for a review of the protoplasm — the following average proportions of ashes indicate the requirement of the various types of grain together with straw:

	Wheat	Rye	Barley	Oats	Rice	Corn	Total
Potash	104	131	141	139	127	199	841
Soda	18	16	26	33	31	7	131
Calcium	52	36	38	46	35	53	260
Magnesia	33	32	39	29	77	44	254
Silica	285	240	295	335	165	182	1502
Phosphoric acid	105	101	91	73	33	93	496
Sulfuric acid	16	12	21	19	20	26	104
	613	578	651	674	508	604	

The figures for potash, calcium, magnesium and silica without mistake indicate weathered primeval rock as their source, although a certain growth can even take place out of pure sand and mica (magnesium silicate) with the aid of water and sunshine. But there will be no grass blossoms or fruit because these definitely need aluminium phosphate (clay) which is contained in all natural rock. The blossomless and fruitless beach oats *(Avena sterilis)* is produced out of pure sand and mica, atmospheric carbon dioxide, sea water and sunshine, *without seed,* because it contains neither phosphoric acid nor sulfuric acid, therefore it cannot have been produced from seed because *every* seed contains phosphoric and sulfuric acids which pass into the plants growing from the seed.

From the above-mentioned ash proportions it is obvious that sandy soil can also be made valuable for grain growth when it is fertilized with gypsum, chalk and ground rock. Every pound of such a rock mixture together with water and sunshine supplies at least three pounds of grain and straw. Expressed in commercial value, that makes nearly 3000 percent profit.

In another section I have given examples of the original creation of insects during normal summer heat. A further proof of the generating effect of oven heat is the creation of maggots in fresh bread. To this can be added a third product of a modern variety of heat, i. e., the steam mill heat.

Robert Mayer's teaching on the equivalence of the partial forces, upon which he based the uniform effect of the even Javanese climate on arterial and venous blood, is now brilliantly crowned. We have made the triumphant discovery that completely novel types of hitherto unknown forms are newly created when, ignoring day and night, we permit the entry of a new modification of the cooperating partial forces: substance, heat and time.

Since we have steam flour mills which operate continuously day and night, in which the temperature is of a constant high degree, there develops in these mills out of the grain flour, during the whole year regardless of the season, a completely new type of butterfly, the so-called Kuehn's flour moth *(Ephesia kuehniella zeller)*. The native habitat of this insect is neither East nor West, but the flour mill; the fine phosphorous flour substance is the ancestress and the warm air surrounding it is the ancestor of the flour moth. Here generation takes place as in the case of fruit maggots and beet worms, and more certainly because the cereal grains contain ready nerve tallow (lecithin).

The Grape Vine. Even at the beginning of the 20th century the theory was still taught that potassium, phosphoric acid and nitrogen formed the aids to ensure fertile growth while all other substances were sufficiently available in the soil. But this theory is wrong. I first perceived this in making a study of the types of mountains on which grapes grew most successfully. Grapes will not grow on gneiss; on the other hand they grow beautifully on calcium soil, basalt and lava. How can this be? Because in all of these, is the potassium content not the greatest in gneiss? It consists of feldspar, quartz and mica, and its feldspar is indeed potassium spar and its mica is potassium silicate. Apparently, therefore, the potassium alone cannot cause the growth of the vines. Basalt on the contrary contains, above all, sufficient *calcium* and furthermore in addition to potassium also *sodium* while this latter substance exceeds the quantity of potassium. Quite naturally! Every chemist knows that a mixture of soda and potash melts much more easily than potash alone which, by the way, is also of practical significance for glass manufacturing. Further, every glass worker knows that the addition of calcium makes a glass which melts easily. In accordance with this theory the chemical compound of the easy-melting basalt forms a contrast to gneiss which does not melt easily. Basalt, besides sodium and potassium, also contains for the major part magnesia and calcium while very little calcium can be found in gneisss. Lava is comparable to basalt since the vines grow equally well on

both without the assistance of stable manure.

Porphyry in its different varieties is also poor in calcium but instead contains more potassium and sodium than granite does. Granite contains on an average about 6 percent potassium and sodium of which either one or the other drops to 2 percent or rises to 4 percent in the different kinds of granite while the kinds of porphyry often contain more than 11 percent potassium and sodium and therefore produce a fertile vegetation if rain and sunshine are favorable. These variations of mountainous soil have all originated from a common glass fusion (flux) in such a manner that first separated the difficult to-melt clay material called gneiss being poor in soda and calcium, then the heavy metal compounds, the so-called ores, were eliminated, thereupon crystallized the granite and eventually separated the material rich in soda, being easily meltable and which remained fluid the longest, also hardened into porphyry.

Now when the types of rock which contain more sodium and calcium than potassium give the best wine then we have to question why it is that notwithstanding the preponderant quantity of sodium in the rock the grape pips nevertheless contain only 5 parts sodium as against 70 parts potassium and, furthermore, what is the influence of the sodium? The potassium rock gneiss teaches us in this respect that the alkali constituent potassium tends to *separate* from sodium similarly as the sodium phosphate in the egg yolk separates from the egg albumen which contains phosphate *and* sulfur.

This fact is confirmed when a solution of potassium soap is converted into sodium soap by the addition of common salt (sodium chloride) and the resulting potash lye then *separates.*

Therefore, we find in *soda* a similar growth and fertility-furthering, driving and dissolving power as in *gypsum.* It is known that only an insignificant amount of gypsum is absorbed by plants; it stimulates the growth but only a small amount accompanies the growth. The main amount does not participate in the direct formation of protein but stays in the soil. Now when more potash than soda in the shape of plant growth rises from the soil, eventually the soil will also be depleted of its sodium silicate and then the grapevine degenerates. When this condition is reached it cannot be improved with sodium chloride, because just as it transforms potash soap into a soda soap it would change potash protoplasm of the plants into a soda protoplasm, as the bad influence of larger amounts of common salt for the vegetation is proven. The explanation of it lies in the chlorine with its higher atomic weight which prefers the heavier weighing potash to the soda. The minerals possess certain living forces which at the proper time become effective.

In accordance with what kinds of rocks are available of which the mountainous lands possess an inexhaustible source, and whether or not the soil already contains sufficient calcium carbonate, the following rock mixture for the *vineyard* are recommended:

I

Ground *gneiss*	100 parts
Calcium carbonate	25 parts
Bone meal or Rock phosphate or Thomas slag	20 parts
Calcined Glauber's salt	20 parts

II

Ground *granite*	100 parts
Calcium carbonate	20 parts
Bone meal or Rock phosphate or Thomas slag	20 parts
Gypsum	20 parts

III

Ground *Phorphyry*	100 parts
Calcium carbonate	25 parts
Bone meal or Rock phosphate or Thomas slag	20 parts
Gypsum	20 parts

Sodium sulfate has quite different properties than those of sodium chloride because sulfur takes part in the protein formation. (Sodium sulfate is even found

in the bile and the egg albumen.) This is the reason why calcined Glauber's salt (sodium sulfate) is added to our fertilizers, for all such soil which is denuded of its soda, needs soda for its fertility.

Just as man and animal get sick when their diet is one-sided and too rich in protein, so does the plant get "sick" when in the natural tension between the earth parts of a protoplasm a kind of disparity exists. Such a "sickness" of the plants is followed by a gradual ruin of the old form, whereby, in accordance with the varied proportion of the tension of the minerals, a new protoplasm mixture results requiring a *new form*.

This explains the *metamorphosis* that without spores, out of the general protoplasm of the wood pulp, phosphate-holding *mushrooms* grow, e. g., the poisonous ergot fungus from grains, the various mushrooms during long periods of moist weather, or the phosphate-holding *insects* and *worms* during *drought*. Both can be attributed to the exclusion of the tensional sulfate salts, in the case of rainy weather by washing out, and in the case of drought by becoming insoluble, whereby this chemical law comes into force: "Corpora non agunt nisi fluida." - (Substances do not act upon one another when they are not fluid.)

Forestry and Water. "To care for the forests brings blessing to all." "Plant a tree and it will grow while you sleep." Forests must be maintained and tended under all circumstances since they favorably influence the rainfall which benefits other vegetation and by absorbing warmth they soften the climate. It is now obvious that sandy soil which lacks clay dries up more quickly than the mountainous soil which contains clay. The sand will dry up even more quickly if the pine needles are gathered up to be spread in the cattle stables. The leaves and the needles belong to the forest as they transform into humus, moss and forest plants which keep the soil moist (sheet composting) so that during dry periods the tree has a reserve on which to grow. Otherwise it dies and the dry sap changes into caterpillars and bark beetles. Brazil, for example, was at one time one of the greatest forest countries in the world. The area between Rio de Janeiro and San Paulo contain the world's finest coffee plantations. Where once beautiful forests extended over a vast mountainous area with broad valleys, these forests have now completely disappeared. The trees have been *burned down* and the land cleared and on thousands of square miles coffee plantations now produce enormous crops due to the virgin soil and its content of wood ash.

Along with the forests, the only natural factor for the regulation of subsoil water also disappeared. The result was the cessation of the soil's fertility, erosion, drought, a change in the climatic conditions and consequently in the conditions for life. The necessary drinking water could no longer be supplied to the towns and, on the other hand, the expansion of the towns was coupled with an increase of the water consumption per person and by the expanding industries. Through the dreadful destruction of the forests, the mono-cultivation of coffee for many years and the neglect of the barren cattle fields, the water reserve of the area in a 300-mile-wide zone from south to north along the east coast was depleted.

Similar conditions are found in other parts of the world. It seems to be the curse of *humanity to dig its own grave* with the further development of its "progress." Every industrialization results in more people being massed together; in order to provide more living space forests are cut down and at the same time this removes the possibility of water supply. Statesmen with a sense of responsibility must take care that the bases for a healthy development of a country are maintained. This includes an adequate water supply which is guaranteed by the preservation of the forests.

If the sandy moorlands are fertilized with ground rock the spent capital will be returned with ample interest in the form of timber and firewood. The earthy constituents of the various types of wood always give a higher value when used either as building or firewood. For it is

the ash content of the wood which contributes to the lasting glow of the fire. Gravity generally functions like a force. Even light is held together by mineral substance (Drummond light). How weak, on the contrary, is the flame of mineral-lacking alcohol, but what an intense ray is produced by the glass flux of the sun! Heat too is held together better by the ash content since its specific gravity exceeds the weight of carbon dioxide approximately 3000 times. Enough — we all know that wood, which contains many ashes, provides a lasting source of heat.

The ash constituents are also of essential significance in timber resistance in which the oak and beechwood rival. We must attribute to the potash the property of keeping the cellulose tough and elastic, while the calcium makes the fiber brittle. This fact can be studied best in flax and cotton. When after century-long cultivation the soil of cotton plantations is depleted of its potash, the resulting crop will be of reduced value. For the same reason soil consisting of granite-holding primeval rock supplies a better grade flax than where calcium rock dominates. Holland and Belgium, Ireland and the Russian Baltic provinces, also the Silesian lowlands, supply a better quality linen than the limestone country in England, France and Spain. Similar to flax and cotton, forest trees do not show equal resistance power on different soils, and the reduced durability is caused by a lack of *potash and soda.*

When beechwoods no longer find any of these alkalies in the forest soil, red rot shows up and they perish. The natural preventive is to quarry virgin basalt rocks at nearby places, grind it and spread it on the forest soil at periodic intervals.

The Steppes Grow Ever Larger. In the time of the Emperor Augustus, more than 70 million people were living on the Iberian Peninsula. Today, 30 million Spaniards cannot draw sufficient food out of the same soil. Every three or four years, because of crop failures, food must be imported from foreign countries. The reason for this must be sought simply in the fact that the abundant Iberian forests have been systematically destroyed in the course of the past two thousand years, the soil gradually being turned into steppes.

A similar situation has developed in Italy, in the French Maritime Alps, and in the Balkans, where we meet with a striking example — the Carso Mountains. And just like the situation in the Mediterranean regions is the one in Asia Minor, in America, in China, in Africa — and of course also in Central Europe.

The forest is the guarantee of steady water circulation, stability of the climate and fertility of the adjacent agricultural soil. Its enormous roof protects the land from radiations from both above and below and serves to equalize the differences in temperature. The leaves fallen during thousands of years have created the layer of humus. A pine or scotch fir of medium size drives its main root from ten to thirty feet into the earth. From it spring about 300 roots of second order, and from every one of these again 300, and all this takes place sixteen times. The total length of such a system of roots can reach a total of over 600 miles.

This system of roots intersperses the soil in perfect concentration and holds it fast, just like it does the water. In an area of about three acres, to a depth of three feet, it immobilizes 2000 tons of water. Now, if the forest is cut down, both roots and moss are destroyed, the soil loses its sucking capacity and its solidity and the rainwater runs down and carries away the earth with it. The wind then sucks off the humidity and the favorable effects on the climate are lost. Fertility and the agricultural yield diminish and we witness a process of erosion.

In Europe in the Middle Ages, there were about two-thirds leaf trees and one-third conifers. Today, the leaf-tree proportion is about five to one for the simple reason that spruces and scotch firs yield larger quantities of wood much more rapidly. The spruce, with its flat-extending rooting, robs the soil of all its reserves of water and swallows the reserves of humus. Furthermore, it deprives all other plants of light and actually kills them owing to its falling

needles containing turpentine. It follows that the rainwater cannot trickle into the soil any more. Beyond this, both spruce and scotch firs are trees having the most numerous enemies among insects, which then arrive in billions in these woods.

In the mixed forest, on the contrary, the deep-rooted tree is the companion of the tree with a flat-root system; they complete and help each other.

The deserts, the steppes, the dry and deserted areas are already far larger than those covered by forests. North America, in the course of the last fifty years, has lost three-fifths of its woods and forests; only half of the continent enjoys sufficient rain. Nine-tenths of Central Europe was at one time covered with forests. Today, the forest area has decreased to 28.8%. In western Germany, during World War II, nearly double the quantity of wood was cut that could naturally grow in replacement thereof. Just now, it is true, much reforestation is taking place, but on the whole, the statistics are not encouraging.

The forest is not a field, the harvest of which you can gather today while sowing new grain again tomorrow. A tree needs decades in which to grow. Wherever the subsoil water has disappeared, no forest will grow again. On the other hand, the needs and requirements for wood increase every year by about 10%. In this way, the wood reserves of North America will be exhausted in about 30 to 40 years, those of Europe in about 50 to 60 years. Thus, it appears to be a mere problem of mathematics to fix the day when the last tree will have fallen. Then, the period of the desert will begin. Man, every year, transforms one billion cubic meters of wood into paper. A single Sunday edition of the *New York Times,* for instance, does away with 200 acres of forest. (From *Wir Brückenbauer,* Zurich, January 14, 1966.)

Cattle Breeding. Cattle breeding and manure are two things belonging together. We could not exist without domestic animals even if we abstained from meat consumption. In this connection the efforts of vegetarians should be recognized because it has been proven that we can live long and remain healthy without eating meat; but it is definitely hopeless to endeavor to convince all humanity of the benefits of vegetarian life. The various activities of the *blood serum* of various persons prove that a variety of digestive juices are produced by the blood serum (stomach juice, bile and pancreas juice) which, according to their characteristics, again produce their peculiar chyle out of the digested food which by nature results in blood with the original activity.

How very wisely has God planned everything! The variety of tastes among people, their various inclinations, mental capabilities, aspirations for certain aims — this practical distance between the various spheres of interest — makes a peaceful community possible. This can be attributed to an infinitesimal variation in the *mineral blood activity.*

The domestic animals are our suppliers of milk, butter, cheese and eggs, wool, feathers, horn, leather, fur and glue. The cattle hide is as indispensable as clothing for the naked human beings in cold climates and for this reason alone cattle breeding is an important factor in our sources of help.

In addition, it must be taken into account that the domestic animals return practically all their food in the form of *manure.*

With the aid of this manure an equivalent amount of crops is produced again, even in a shorter period of time than with the aid of minerals. And since for us, perishable as we are, living in an area with a limited amount of sun heat, any time gained is a valuable property, so there is every reason to value the animal excrements inasmuch as they are pre-formed parts which in a speedy way can be synthesized anew. They are spread over the fields in the form of compost manure, transform into fodder again the next year thus close the cycle which has been followed for hundreds of years in Japan and China where hardly any cattle are bred and where the excrements are composted with minerals and ground rock.

With the rapid expansion of industry and large towns the removal and utili-

zation of city sewage and refuse becomes a vital sanitary-scientific problem. The natural utilization consists of a systematic composting of all animal and plant waste with earths and ground rock which after sufficient decay again are spread over the pastures. This at the same time avoids a pollution of the subsoil water, the streams and lakes while we retain healthy drinking water.

Taking into account that every movement takes time and that time represents a power equivalent, plants are products formed out of minerals, water, sun power and time. The fragments of plants and animals also fall into this category so that the modified protein of crops ruined by hail, all plant waste as well as animal excrements in the form of benzoic acid, tyrosine, leucine, urate of ammonia and their transformation products, all represent a combination of sun force and collected, saved-up time and power. We only have to look at the big yields of our red currant and gooseberry bushes whose roots are covered over by weeded dandelion, plantain, etc., in order to let these decay there. The roots of the bushes can now send large quantities of protein up into the branches in an equal length of time since they need not be delayed by the preparation of minerals. Furthermore, this method of fertilizing is applied in many countries as "green manuring" or sheet composting with excellent results.

Green Manuring. We do not have to supply the fields with the complete nitrogen which is required for plant growth, as the "germ" alone is sufficient. As soon as we have harvested barley, or rye or oats and remove them from the fields, we sow vetches or peas close together; within a short time we then have as much nitrogen available in the roots and plants as may be needed by all the next grain crop. We must not be so foolish as to mow down the vetches and store them in the barn. This would only create unnecessary work and expense, because afterwards we would have to load the manure onto the carts again and bring it to the fields. That is the very thing we wish to avoid – the nitrogen must get into the soil *by itself* and this it does very obligingly in the form of vetches, or peas or rapeseed or other leguminous growth. Then the growth is plowed into the soil instead of the manure and we can say the nitrogen "spirit" has appeared in the soil *by itself* through a union with earth, water and air without the necessity of bringing a manure cart onto the scene. Such green manuring actually replaces stable manure as far as heating, loosening and moistening the soil are concerned.

When using green manuring we need neither nitrogen fertilizer nor Chile saltpeter (sodium nitrate $Na\,NO_3$), nor need we breed cattle to get fertilizer for grain cultivation. There exists an essential difference between vegetable and animal substance because in the first the proteins are united by a sufficient quantity of *earths* which give it a long life, whereas the animal proteins contain more cyanogen CN or ammonia which are of a very *transitory* nature as soon as the motion of metabolism stops. When beef is burned only $1^1/_2$ percent ash remains, against 6 percent oat straw and 7 percent rape pods. For this reason the latter are more durable than beef.

Instead of the earths (potash, soda, lime, magnesia) as they dominate in the vegetables, *ammonia* enters into the animal flesh substance and this tends to volatilize as soon as the electrifying breathing no longer keeps the material together in electric tension. Therefore our vitality is newly-born with each new breath. Especially in the urine excretion it is not long before *ammonia* is liberated. But the ammonia *paralyzes* the pneumogastric nerve, causing catarrhal affections. The ammonia also has such catarrh-producing effect in case it adheres to hydrocarbons or to phosphine, be it as trimethylamine, propylamine or phosphinamine.

All these putrid products produce specific paralysis of the intestinal nerve combined with catarrh, or scarlet fever, diphtheria, typhus, etc. In horses the effect is shown in the specific form of glanders. In ruminants the functions depending on the pneumogastric nerve, namely the digestive tract, stop with general *blood decomposition*.

By admitting oxidizing fresh air into the stable, the unchained gases become harmless. Due to the accumulation of dung and liquid manure and their ammoniacal evaporations, many cattle perish so that a large number of stables as they are usually conditioned can be termed death chambers. Along with this, the usual grazing in spring and fall becomes more seldom. We can almost consider it a physiological crime when during disease of the cattle the stable doors and windows are barred, thereby depriving animals of health-giving oxygen.

A sufficient admission of fresh air is the most rational means of *prevention* against cattle epidemics, because the damaging ammonia gas by the air oxygen decomposes into water and harmless nitrogen $N_2 H_6$; $O_3 = N_2$; 3HHO. But it is even more advantageous *to prevent* ammoniacal decomposition right at the start, thereby holding together its tension power which is so valuable for rapid plant growth. For this purpose it is best to abundantly sprinkle the stables with gypsum or with wood ash or ground rock, a method which is also most efficacious for all human excrements.

Instead of wood ashes it is more practical to directly grind *primeval rocks* which in primeval time crystallized into ash substance, and to apply this ground rock to disinfect the animal dung as well as to fertilize our fields. It is true that the clay of primeval rock is not transformed into plant substance, yet it is vital for fertility because it holds together the soil moisture without which no growth is possible.

Rock Analysis. The various kinds of granite contain on an average from 6 to 7 percent potash and soda, from 2 to 4 percent calcium and magnesia and 1 to 3 percent manganese and iron oxide, to which must be added the content of sulfur and phosphorus so that one can estimate that the kinds of granite contain at least 10 percent soluble plant nutrition, whereby the silica which forms the seventh part of the plant ashes is not calculated. Since the ashes of plants average to about 3 percent, so from each 100 pounds of ground granite we can expect only 300 pounds of field produce. But this proportion becomes most favourable when we mix the ground granite with limestone and gypsum, because sugar and cellulose are produced from calcium carbonate and the gypsum to a certain degree assists the protein formation. Further, the old soil assisted by the soda from porphyry or granite and by the sulfur from the gypsum still provides sufficient plant nutrition, so that sprinkled ground porphyry, gypsum and calcium are not only source for new plant growth but they activate the nutriments still available in the soil (calcium phosphate and potassium silicate) to abundant fertility.

In this sense a mineral mixture of ground porphyry (potash, soda, clay silicate, as well as calcium, magnesia and iron), dolomite (calcium-magnesium carbonate) and gypsum (calcium sulfate) can rightfully be considered as a *universal fertilizer,* which has an efficient effect on every type of soil and any type of growth. Of course, the usual agricultural rotation must be maintained, for instance, one year barley, the second rye, the third oats, the fourth potatoes, the fifth beets and then barley again, and so on, while instead of the previous fallow a second crop must be harvested in the year to serve as the so-called green manure and this can alternate between peas, vetches, mustard, rape and the various types of clover.

After all these explanations, it is clear that if we add calcium chloride and magnesium chloride to a certain protoplasm mixture its nature and properties are very definitely affected and under certain circumstances even disappear. This is because the main growing material of all plants is not hydrochloride but carbonate of hydrocarbon. We therefore see the many unfortunate experiences after fertilizing with Stassfurter salt which should only be applied in proportionately small quantities mixed with earth silicates. The chlorated insecticides are also harmful to plants and soil. Thomas phosphate cannot give the desired success because an excess of the phosphates checks the effect of the sulfates so that no protein can be produced. Nitrogen fertilizer in many cases

does not cover the costs, e. g., potatoes do not show a bigger yield, because they contain but 0.0075 percent nitrogen.

Nitrogen fertilizer is *the worst of all.* With the example of malic acid being a sugar fragment present in numerous plants I have explained under the heading *Sugar Beet Cultivation* how its union with calcium and potash produces specific plant salts, however with ammonia it produces a compound resembling animal protein called asparagin with the result that under the summer heat it is transformed into worms. Therefore, when calcium or potash are lacking, *ammonia can take their place* and represent them *without* this displacement being recognizable in the shape of the plants. This knowledge is of *vital physiological significance.*

Such ammonia products, however, are rather frail. They do not contain enough earth to keep the stalk upright and so remain flat on the soil. Can one build a house from mere glue and pasteboard? Does it not require iron, calcium and stones? Is not every rye stalk a building consisting of many floors or internodes, whose node joints are filled with silica, calcium, magnesia, potash and soda to support the upper floors?

The ammonia plants are frail and so are the creatures who live on them. What a difference in health between the cows who feed on grass and herbs grown on the calcium-rich Alps and the cows fed with grass grown on meadows in the valley where intensive dairying with excessive manuring exists. Why always seek kinds of virus and bacteria when man in his chemically-blind ignorance poisons himself, animal and plant?

When a universal fertilizer is used consisting of ground porphyry, gypsum and calcium-magnesium carbonate (dolomite) nothing from this material can be washed into the subsoil by rain, nor can anything be lost as is the case with the easily-soluble and expensive Chile saltpeter and nitrogen fertilizer. Let us look at each of these universal fertilizer components from a chemical point of view.

Dolomite as such is *not* soluble in water at all. But since the silica in the dolomite causes carbon dioxide COO to be liberated, this latter substance in combination with water will create hydrocarbons CHH while splitting off oxygen in the form of hydrogen peroxide $\begin{matrix}HO\\HO\end{matrix}$. And it is these hydrocarbons which make the insoluble minerals soluble. Even barium sulfate which is absolutely insoluble in water becomes soluble when two hydrocarbons are added (barium ethylsulfate), while the calcium sulfate (gypsum) becomes even more soluble. The solubility increases when the produced hydrocarbons and carbon dioxide absorb the atmospheric nitrogen.

The new compound is now called plant protein containing intra-molecular gelatine sugar COO CHH NHHH. The carbon dioxide of the gelatine sugar in its free state chemically unites with the bases and by its ammonia unites with acid substances and in this way acids *and* bases form salts. In the same way the gelatine sugar-holding protein groups, which for instance chemically unite with sodium sulfate, can create compounded larger protein groups. Similar is the behavior of sodium silicate and potassium silicate which in all leaves and stalks form the cementing material for cellulose. As in calcium sulfate, so the calcium phosphate also becomes soluble through the existing compounds of hydrocarbons.

Since all hydrocarbons can be created from carbon dioxide and water, only under the electrolytical influence of the sunlight and the sun heat, so all chemical processes cease during the winter. The more intensely the sun shines, the greater is the dissolving power of the soil moisture on the otherwise difficult-to-dissolve silica. Because silica is soluble in 500 to 1000 parts of water according to the degree of heat, there can never be too much of it going into the plants at one time. Yet it accumulates in barks and leaves together with cellulose because the soil moisture permitted its solubility and the moisture evaporated on the spread leaf surfaces.

With regard to *gypsum,* it requires from 500 to 800 parts of water for its solubility according to the degree of

heat, therefore this substance too cannot become dissolved excessively, thus proving that neither calcium-magnesium carbonate nor calcium sulfate, nor the sodium-potassium silicate of the porphyry or granite can go into the plants in excess. Consequently, there is neither damage nor loss by washing the earth into the subsoil nor by overloading the plants with soda, potash, calcium or silica up to the point of damaging public health. Only that much rises into the plants as can be transformed into sugar, cellulose or protein through chemical union.

The case is quite different with Chile saltpeter which is already soluble in three parts of water and which accompanies the rising plant saps and is damaging to man and animal. Grass grown with Chile saltpeter causes flatulence and blind staggers in grazing cattle. It has been proven that wherever straw litter has by mistake been sprinkled with Chile saltpeter instead of with kainite the animals who were accustomed to lick the salty kainite then became victims of inflammatory diseases.

The fertile growth of cereal grains, although requiring silica, depends first and foremost on the *sun heat* and not on the solubility of the artificial fertilizers. There is also growth in winter but this does not contain silica as, for instance, the winter sowing which develops out of the starch flour and alkalies in the grain and which would also grow to a certain extent in pure water. At the time of the spring equinox the stem of the snow drop *(Galanthus nivalis)* also grows purely out of the substance contained in the bulb, which develops as soon as soil moisture is added. Outside in the cold the stem remains upright but in the heat of a room it collapses since it then lacks the supporting silica. The same applies to other beet and bulb plants, e.g., crocus, hyacinth, cyclamen, etc. Even the spring blossoms of the trees *(Alnus glutinosa, Daphne mezereum)* create their material purely out of the cambium sap which supplies nourishment, because after a period of frost the root cellulose is transformed into sugar (analogous to frozen potatoes). This process of the formation of sugar out of cellulose during *frosty weather* occurs because of the *inactivity* of the *silica* which results in a splitting up of the sugar anhydride (cellulose) into silica hydrate and sugar. The maple tree is also a good example of this process since the sugar content of its sap is largest during the early part of March, after which it gradually decreases until it contains no more sugar at all. For this same reason the root sap of other plants, as for example the milk juice of the dandelion root, also contains sugar during spring while it disappears during the later seasons.

Silica is only soluble and chemically active in the sun heat, but then without interruption. Since the sun lifts out of the soil one part of silicate in dissolved form with 500 parts of soil moisture, tomorrow a similar part and so on each day, so it becomes clear to any layman that a more or less speedy growth of wholesome plants rich in minerals depends entirely on the *sun force* and corresponding *soil moisture*.

In consideration of this chemical explanation and practical experience, the preference of using *mineral* fertilizer instead of ammoniacal fertilizer is theoretically and practically a proven fact.

In conclusion it is understandable that when the soil is fertilized with ammonia instead of with earths, the animal organism will also be nourished with inferior fodder and thus cannot be resistant to disease. Consequently, a large number of cattle epidemics can be attributed to the excessive use of nitrogen fertilizer which is being imposed upon the farmers to produce "big crops." And also all human afflications, especially the numerous children's diseases (smallpox, scarlet, fever measles, scrofula, diphtheria, infantile paralysis) find their explanation in the use of milk deficient in calcium coming from cows fed with fodder, which was grown on manure-fertilized soil deficient in calcium. Since calcium preparations, iron, sulfur, Glauber's salt and Epsom salt actually have a curative effect on diphtheria, scrofula, etc., evidently they must have been lacking in the blood of such patients. In

other words, in mineral deficiency we must recognize the *cause* of diseases. By an *official compulsory limitation* of the use of nitrogen fertilizer for our fields, we not only can prevent considerable loss of money but at the same time can bring about the *regeneration of the human race*. The more man disturbs the harmony of nature, the faster his degeneration.

ROCKS AND WATER, THE MOST CONCENTRATED EGG SUBSTANCE

Small hollows and splits in feldspar stone filled with rain water bring forth moss and lichen which need no roots. As soon as deeper cracks are found in the rocks where rain water is prevented from being evaporated for a certain time and where deeper-rooted plants find the necessary hold to bring forth solid stalk, then we see how from the cliffs of naked porphyry and basalt rock grow digitalis herb, saxifrage, silver weed *(Potentilla)*, St. Joseph wort *(Hypericum perforatum)*, Pearly Everlasting *(Gnaphalium)*, etc. These were the first settlers on the rocks which the railroad engineers with their explosive powder opened up and exposed to the rain water and sunshine.

In the beginning there is but a small selection of such herbs, which the feldspar brings forth in union with water and atmospheric carbon dioxide. Through the years, by continued attraction of atmospheric carbon dioxide, the porphyry and granite become weathered, whereby their basic constituents form *carbonates* of potassium, calcium, soda and magnesia. Thus, the flora becomes more varied and the plants show an abundance of *sugar and oil*.

Java and Ceylon could not supply us with cinnamon or cardamon or coffee if it were not for their chalk mountains, the mud of which is carried down by rain, maintaining the lowlands in never-changing youthful productivity, teaching us how rich and fertile soil can become when calcium carbonate with ground *feldspar* is used as fertilizer.

Calcium carbonate is a genuine storehouse of *sugar substance;* the sugar in turn supplies starch and oil and with ammonia protein substance, which are the essential substances for good nutrition. Sugar is the link joining the mineral world with the plant and animal worlds so that the newborn sugar represents the very first product of the warm sunlight. Sugar with its carbon dioxide is *fused together* with the potassium or calcium or magnesia earth of the feldspar, which in turn are attached to silica. Sugar and stone form an inseparable unit.

Since agricultural schools teach the detrimental theory that nitrogen fertilizer with potassium phosphate suffices to create wholesome plants, at the same time systematically ignoring the only natural fertilizer of ground rock, and since this knowledge is of fundamental significance for the health and general welfare of all peoples, I find it necessary to draw attention to a fact which can easily be observed by everybody.

When anywhere along the road a young plant, for instance, *Senecio vulgaris*, is pulled out of the ground, one lifts along with the root fibers a considerable amount of earth and small stones. Of the latter some of them when shaken wiggle on the root fibers like fish on a hook without dropping off. If eventually we use our fingers to remove the little stones it shows that the forced separation has caused a *disrupture* of the root fibers, because under the magnifying glass one still can see fine little fibers hanging onto the little stones in intensive union. Here, there is no question of mechanical adhesion. In reality, the stone and plant form a common being in the sense that the stone material is eaten up by the plant to form flesh and blood, being *sucked* up by the plant piece by piece of the potassium, calcium, magnesia, carbon dioxide and silica. Only clay is left over.

To go straight to the point: The young plant sucking at the stone is in the same situation as the sucking young kangaroo. As the undeveloped baby kangaroo hangs at the breast of its mother for eight months as if both were one unit, so the suckling tree root, the grass root, the herb root, clings to the breast of Mother Earth. And where the tree and grass and herb stop, the kangaroo begins because it feeds from grass and herbs, from roots and tree barks.

It is the glycolic acid COO CHH HHO existing in the sugar group which dissolves and eats up the *stony* material, in particular its *bases*. Under the electric sunlight the glycolic acid produces ammonia NHHH with the free air nitrogen N and separates water for it, thus creating gelatine sugar or glycolprotein COO CHH NHHH. It is with the help of this ammonia that the mineral *acids* organically combine to build the innumerable varieties of plants.

When plants are burned, i.e., when the glycolprotein is oxidized into carbon dioxide, water and nitrogen, *ashes* (minerals) are left over, which, although small in number and kind, create the myriad forms of plants by changing the proportions of the minerals which participate in the building of the plant.

The vital power in gypsum crystal, oolite crystal, feldspar, sea salt, pyrite and calcium phosphate is only seemingly dead (as in sugar) and needs but to be awakened. With open eyes we must especially consider the calcium phosphate of our bones. According to the prophet Ezekiel (Ezekiel 37 : 1-10), he brought bones to life and these, indeed, supply the material with whose help soul and conscience make their appearance. Since such a capacity lies in phosphorite and apatite (calcium phosphate), we no longer can regard the stone world as dead. On the contrary, it is alive, the same as we are, since it is a part of ourselves.

Thus our family tree leads back to the *primeval stones* about which Greek poetry taught in the form of the legend of Deucalion and Pyrrha. "The hearts of mortals are still hard and make known that once upon a time God's power created us from stony substance." (Ovid's *The Metamorphoses,* First Book.)

WITHOUT THE MINERALS OF THE PRIMEVAL ROCKS NO PLANT CAN GROW

There is no cellulose without potash, soda, chalk, magnesia or silica. These minerals become *organically alive* through their union with cellulose which under the sunlight is produced from carbon dioxide and rain water, separating hydrogen peroxide. If these minerals were extracted from the cellulose of a tree by boiling with sulfuric acid, then instead of a tree trunk we would have "sirup."

Animal and human bodies, too, need earths for their cohesion. This is the reason why plants cannot grow in the air, they must root in the *earth.* Now of what material is our earth made up? Earth is weathered primeval rock (gneiss, granite, porphyry) and all primeval rock contains, in various proportions, the minerals:

Feldspar, i. e., potash, soda, calcium (chalk), magnesia, iron and clay (aluminum) united with fluorine and silicic acid. This material represents a glass flux mixture which exists in the core of the white-hot, fluid *sun* substance, of which a small fraction once was thrown into space and became our earth substance. With the gradual cooling-off of the glass flux a certain part of the silica crystallized in the form of *quartz* and a certain part of magnesium silicate together with a certain part of silica bases also found in the feldspar crystallized as *mica,* so that all three kinds of primeval rocks - gneiss, granite and porphyry - consist of various amounts of feldspar, mica and quartz.

The *primeval rocks* supply us with the most concentrated protoplasm when

united with water vapor, carbon dioxide and nitrogen from the air. And since the base elements of the primeval rocks to a certain degree can replace one another, it is useless to guarantee a certain content of potash, soda. etc. It is enough when we know that the porphyry and granite rocks contain clay phosphate and potash silicate from which result *clay silicate* and *potash phosphate*. Proof is given by the abundant growth of herbs on rocky soil, whose roots are rich in potassium phosphate such as the *dandelion,* whose roots after burning, leave an ash consisting of more than one-half potash phosphate. The same holds true for chicory, thistle yarrow, *(Achillea millefolium),* etc. When we scatter grain seed upon prepared ground rock, then fewer weeds grow, especially when calcium carbonate and gypsum are added which involve a different protoplasm. By the way, is not the plentiful production of Thomas phosphate from iron ore the best proof that phosphorus is found in abundance in the bowels of the earth and need not be supplied by artificial fertilizer? Why not draw from the original fountain which is free of charge?

We need no artificial fertilizer as long as we spread each year virgin granite, gneiss or porphyry rock meal to furnish genuine strength, plus dung mixed with calcium and gypsum on our fields in order to replace the minerals that have been removed with each crop. The great social problem of the world, whereby the birth rate continues to outstrip the food supply, demands greater yield *and* richer yield per acre through *minerals*. Due to the use of nitrogen fertilizer our modern food is overloaded with protein and at the same time deficient in vital minerals. I wish to impress on the reader that for a rational nutrition all of our standard foodstuffs supply enough carbohydrates and carbon dioxide which united with the nitrogen in the air form the protein-holding glycocol. So even apparent scanty foods, e.g., potatoes and herring, are capable of producing new blood gelatine. Yet *not every* foodstuff contains at the same time the necessary cementing minerals in sufficient quantity and variety in order to maintain our body tissues in a healthy condition. An illustration of this is:

Diabetes, which is often caused by indulgence in alcoholic beverages and meat. Why? Meat it readily digested, and certain diabetics are genuine "meat devourers." Meat and always meat! The mesenteric arteries and veins are continuously overfilled with blood and, in accordance with this anatomic state, also the portal vein and the *liver*. What is the consequence? It follows that the branches of the portal vein wholly occupy the space in the liver, so that there is no space left for the oxygen-carrying liver *artery,* which would permit the functions of the liver nerves. The diminished oxygen blood of the liver artery is just sufficient to oxydize the gelatine sugar of the blood albumin into urea, whereas the blood sugar remains unoxidized. (Blood albumin consits of 18 parts blood sugar and 18 parts gelatine sugar.) Yet it is the oxidation of the blood sugar that causes the higher temperature which is peculiar to and necessary for the liver in order to separate the bile from the blood albumin in the liver cells. Since insufficient arterial blood causes defective bile secretion, so the assimilation of chyle from the food is limited accordingly. Meat, poor in minerals as it is, wanders mostly unused through the alimentary canal. Such diabetics are eternally *hungry*. Contrary to meat, *potatoes* contain all physiological minerals necessary for the formation of new blood. "That is what we need!" now say the intestines. *"This we hold fast and use it up."* Therefore potatoes satisfy, they pass through the alimentary canal more slowly than meat and therefore need considerably less arterial blood. Evidently, less venous blood now flows to the portal vein and molests the liver.

While it is true that various factors can cause diabetes such as paralyses of the lung nerves, tobacco smoking, long exposure to cold air, or the restraint of flow of the liver blood by sedentary habits, yet it is a fact that the meat eaters and wine and beer drinkers supply the biggest quota of clients

appearing regularly at the famous Carlsbad mineral springs in Bohemia (now Czechoslovakia). This is because meat furnishes the organism principally with potassium phosphate, and wine and beer (which also contain mainly potassium phosphate) systematically wash the sulfur, calcium, iron, soda and silica components of blood out of the body with the excretion of urine. The Carlsbad mineral water and other mineral spas with their healing properties are an indisputable *proof* of the value of the vital salts and earths without which no whole red blood can be formed. And the most natural way to supply our organism with the necessary minerals is to select food from the vegetable kingdom *rich* in minerals such as *potatoes* holding a store of earths, whole grain bread with the bran and germ, green leaves as salads, beans, peas, nuts, poppy seed, milk, fruits, etc.

THE WRONG FERTILIZER THEORY

The most important fertilizer are *water* and *carbon dioxide,* because all plant growth aims to make these two combustion products *burnable* again.

While people and animals periodically take such burnable material as nourishment they enable their lamp of life to continue to burn, because the animal process of life is in fact a continuous oxidation (in the chemical sense, burning) of the entire body into carbon dioxide COO, water HHO, nitrogen N, ash constituents and other combustion products. Carbon dioxide gas, nitrogen and water vapor pass through the lungs and the skin while the ash constituents mainly disappear with the urine discharge.

While all the mineral substances which are essential to the sustenance of the human body, such as *calcium, magnesia, sodium, iron, manganese, silica, phosphoric acid, sulfuric acid, fluorine and chlorine,* are discharged along with the urine, there can be no doubt that these materials will have to be replaced again by nutriments. Otherwise, to give a few examples, with a shortage of *sulfur* no new gelatine substance can be formed to *replace* the burnt connective tissues and the blood gelatine, since all gelatine substances, without exception, (bone gelatine, cartilage gelatine, sinew gelatine, blood gelatine) contain sulfur particles which are therefore of equal importance to the gelatine substance as to the protein in general.

On the other hand, if there is a shortage of *calcium* in the nutriments no replacement can be made for the burnt bone substance because this is also dependent on the consumption and renewal of substances. From this we can conclude that the arm of a 30-year-old person has not grown out of the arm of the 3-year-old child merely by just growing a little in length and width, but the entire bone structure is consumed and reformed by breathing, through the arteries which run through the bones. So it is not unfounded when the statement is made that every seven years the entire organism consists of new material. These two examples serve our purpose. For the rest, it is self-evident that the entire organism is built up out of *blood* because the child in the mother's womb is formed, with all its limbs and organs solely out of the mother's blood and when later the mother's milk replaces the blood then this is also transformed blood which can again re-transform into blood. Exactly the same applies to adults.

Most people believe they are nourished by meat, bread, beer, wine, vegetables, eggs, etc., but this is a mistake. We all feed only on *milk,* that is, such milk which is produced when the alkaline bile with the pancreatic juice in the duodenum emulsifies the eaten fat substances into *milk juice* (chyle) and draws into this emulsion the products of the protein digestion of the stomach, the so-called peptones (leucine, tyrosine, asparagin, glutamine). The milk which is thus created, flows through the chyle and lymphatic vessels into the large breast milk tract *(Ductus thoracicus)* and dis-

charges from here into the blood on the spot where the vein of the collar bone meets the throttle vein *(Innominata)*. On these paths all of us truly feed on milk. That part which cannot be used to supply the body with new milk is left behind and is excreted through the intestinal channel; but it can easily be understood that such milk can vary considerably in quality in accordance with the diet, in the same way that the quality of cow's milk depends on the fodder which is given to them. The chyle milk juice which has been prepared in the mesentery can be of a very inferior quality and inadequate if it is *deficient* in certain minerals which are indispensable for the digestion and renewal of the organs or, generally expressed, for the *normal consistency of the blood.*

Imagine that only one of the twelve physiological minerals of healthy blood is consistently lacking in the nutriments - let us say fluorine or magnesia or sodium. Then it is clear that, notwithstanding all efforts for self-maintenance by the adjusting qualities of the organism, the physical machine will ultimately become defective here or there by the constantly-increasing deficiency. That is, it will require repair, and when such repair is not provided in good time the possessor of life can meet with the same fate that every rider experiences if he does not have the lost nail of the horse's shoe replaced. And this brings me to the basis of the wrong fertilizer theory.

If our process of life were based *only* on the new supply of burnable material, then linseed oil, poppy seed oil, beet oil, lard or train oil would be quite adequate as nutrition, but this would soon kill us as proved a long time ago by thousands of experiments on dogs, guinea pigs and mice. Other substances are required in addition to gelatine or protein, namely, the enumerated minerals which with a mixed diet we can obtain principally from various *vegetables* since, (of all these minerals) meat almost always contains only *potassium phosphate.* Therefore, everything points to the necessity of producing crops with *ground rock* and compost instead of nitrogen fertilizer, as a benefit to health.

Now when pasture land which has been produced by mountain silt contains all twelve minerals required for healthy plant growth and these are absorbed by the plants, it stands to reason that ultimately all twelve will be consumed and used up, consequently, they will have to be replaced in the soil. That would be the natural *correct* method of fertilizing.

Agriculture professors and fertilizer manufacturers come along and maintain that the ashes which remain from flesh consist mainly of *potassium phosphate,* the same as the ashes from cereals. Therefore, they say that potassium and phosphate are the most essential substances which we must suppply to the plants to enhance their growth and that *nitrogen* should be added because without nitrogen no protein, and protein is indispensable for the animal as well as for the plant organism. In their reasoning these good people overlook the fact that the protein substance also contains and requires minerals, like our protein-containing blood gelatine actually represents an albuminate of sulfur, iron, calcium and sodium. But listen further to what the professors claim:

"All plants grow in the soil, so they obtain everything from the soil that they need for their formation. Now let us examine the constitution of the soil. Oh, how very little phosphorus and potassium do we find therein, and hardly a trace of nitrogen, of this good, precious nitrogen! This condition must change. We must supply the soil with these substances of which it contains so little. It has enough of all the others."

This is scientific wit which we have become accustomed to for many years. One *single aspect* is examined and thus the view of the complete picture is lost. The fact that potassium phosphate accumulates in the plant seeds and in the flesh only, proves that other parts of the plant and body deposit it there, from which the electric end poles attract it, like the last ramifications of the nerve system which end in the muscle substance and like the blossoms and seeds

which develop on the branch or stem or from the corn stalks. But *before* the grains bloom the phosphate is fairly equally divided over *all* the parts of the growth and amounts to about one-tenth of the total ash content. The shifting of the equal division only starts in proportion to the ripening of the grain, because then the phosphate in the root, stalk and leaves moves to the seeds so that they indicate an ashy constituency of not only one-tenth but 30 to 50 percent. This explains why the ashes from straw do not contain 10 percent but only a little more than 2 percent of phosphates.

The fact that our agriculture professors fail to recognize this connection is in itself sufficient reason not to accept their guidance with full confidence. It is much better to accept the fact that when the assimilated minerals of the soil (deducting clay silicate of which only a minimum amount is used) contain one-tenth of phosphates, this is sufficient. This requirement is met by *primeval rock* because on an average it contains more than 1 percent phosphate as well as 10 percent potassium, sodium, calcium and magnesia earth, manganese, sulfuric iron and magnesium fluoride.

It is important to note that in the same way as ammonia can take the place of the solid alkalies in the formation of plant growth, so also can the alkalies replace one another. Once I found dandelion *(Leontodon taraxacum)*, whose root distinguishes itself by an exceptionally large content of potassium phosphate, growing 20 inches high in a moist marble (white dolomite) quarry at a high elevation. In this instance it was clear that only calcium and magnesia earth as well as a small quantity of calcium phosphate and sulfate, of which traces only are found in dolomite, had contributed to the growth while neither potassium nor sodium were present. Of course, the quality of these dandelions varied from those grown on granite soil that contains potassium, because the flower stems based on calcium in the marble quarry were as fragile as glass, while the *potassium*-containing flower stems of the ordinary dandelions are known to be so flexible that they can be easily intertwined by children to form wreaths and garlands. Such an observation is of *far-reaching significance* because, notwithstanding the apparent similar form, the quality of the soil can considerably influence the peculiarities and *nutritive value* of the plants. One only has to compare the flexible linen made from flax which has been cultivated on the Silesian granite soil, which is rich in potassium but poor in calcium, with the fragile linen made from flax cultivated on the Spanish calcium soil. *A plant too is what it eats.*

Therefore, the English sportsman can not use oats which has grown on the English calcium soil for his racehorses, although it is quite good for the heavily-boned brewery horses of Normandy. The racehorse breeders attach sufficient importance to the flexibility of bones and sinews of their horses to import the appropriate oats from Hungary, which owes its special quality to the Carpathian rocks which are rich in potassium.

Now when the agriculture professors and fertilizer manufacturers show themselves to be incorrect guides with their theory of potassium and phosphate they *cause direct damage* with their *nitrogen* fertilizer theory.

The French chemist *Boussingault* is responsible for this false theory. He grew seeds in pumice-stone powder from which he had extracted all plant nutritives by heating and washing, while he took care that all nutritive substances required for plant growth such as water, carbon dioxide, calcium salts, etc., were available via an ingenious tubing system and, to no lesser degree, atmospheric nitrogen; the nitrogen, however, in such a manner that the entering air was permitted to first come into contact with sulfuric acid in order to retain any trace of ammonia content of same. The plants indeed grew by this system but by analysis of their substance it was ascertained that the total content of nitrogen was not greater than the quantity which was already contained in their seed protein. From this Boussingault drew the false conclusion that the plants are not capable of condensing *atmos-*

pheric nitrogen into protein, on the contrary, they must obtain their required quantity of nitrogen from the soil. All fertilizer scientists seconded this misleading conclusion. The experiment appeared to them as an astounding proof and Boussingault's declaration was considered sacrosanct. But unfortunately the experiment had a discrepancy. Boussingault cultivated his trial plants under a *glass bell.*

Plant growth is based on the production of cellulose substance and cellulose is a compound of CHH with COO and HHO:

$$\begin{matrix} COO\ CHH\ CHH \\ COO\ CHH\ CHH \end{matrix} \Big| \begin{matrix} H \\ H \end{matrix} O.$$

For every six parts of carbon dioxide COO which in combination with 24 parts water HHO form cellulose substance, 12 parts of peroxide $O\begin{matrix} H \\ H \end{matrix}O$ are formed which disintergrate in light into 12 water and 12 oxygen. According to weight, 162 grams of cellulose require 264 grams carbon dioxide. Since one liter carbon dioxide gas weighs a little more than 1½ gram, 162 grams cellulose require about 176 liters carbon dioxide gas, against which the double quantity or 352 liters oxygen are liberated. If we take only one-tenth part of this, then already for the first 16.2 grams produced cellulose, 17.6 liters carbon dioxide gas must be supplied, and 35.2 liters oxygen are liberated which completely occupied the space in the glass bell and pressed the air out of the tube which was intended for the entry of air. Consequently, under such circumstances, the share of the air nitrogen in the glass bell for the plant growth must remain completely excluded. As a result of this imprisonment the chemical union of nitrogen and water into ammonia under splitting of HHOO peroxide could certainly not take place, since the confinement in the glass bell prevented the removal of the oxygen which was liberated by the HHOO. Instead of the normal processes which take place in *nature,* a *pathological* condition was created which was not obvious because instead of ammonia, the quick-acting bases (potash, soda and calcium) abundantly available made the plant formation possible. *Boussingault's experiment* taken for particularly sensible, after all proves to be a *false wisdom.*

Then the practical farmers said: But good people, this *cannot* be right, because here grows nitrogen-containing leguminous trefoil, lucerne, lupines, vetches, beans and peas definitely without any nitrogen fertilizer. Their number became so great and the agriculture professors grew so uncomfortable that ultimately the professors "submitted" and had to admit: All right, then! Let that be so! The leguminous plants know the art of assimilating atmospheric nitrogen, we can no longer deny that, but these only and none of the others.

Notwithstanding all evidence to the contrary, they stuck to their assertion that only leguminous plants are able to assimilate air nitrogen for the production of plant protein; all other plants must obtain nitrogen from the soil and therefore must be supplied by the farmers.

Every forest tree has green leaves and all green leaves contain leaf green (chlorophyl), that is, *nitrogen*-containing *plant protein.* Now let the agriculture professors prove who supplies the nitrogen to the roots of birches, pine trees, mountain ash trees, linden trees and maple trees on the Scandanavian rocks. It is true that neither the wood of the tree *roots* nor the *trunks* possesses protein parts because at dry distillation they produce no ammonia but wood acetic acid. Consequently, the nitrogen-containing protein of the green leaves can not have been supplied from the *soil,* but the leaves which are rich in tannin have assimilated the nitrogen out of the *air.* If it were different, then the plant protein of the leaves would have originated from the rocks. Ah, how wonderful that would be! Then we would no longer need hens' eggs but to make an omelette we would stir the Norwegian granite in the pan. Or, alternatively, we could also use some granite of the Giant Mountains or the Eifel or Rhine Mountains, or the Vosges, Brocken, Harz, or Gotthard granite, etc., fools' paradise everywhere. In a broader perspective, this matter is correct, but for

this purpose, as for any other purpose, Nature first requires a little sweat. The mountains must first be crushed and ground, then brought to the valleys and scattered on the fields and these have to be watered so that ultimately they can produce plant protein.

But further! We know quite definitely that the millions of leaves on forest trees absorb the nitrogen into chlorophyl-protein *from the air* and that is no small quantity because on an average dried leaves contain one full percent nitrogen, that is, if we estimate the weight of 1 liter air at a round figure of 1 gram. Then every 100 grams of tree foliage holds a whole liter of nitrogen which is not at all expensive, truly, gentleman, not at all expensive - because the atmospheric air consists of 4/5ths nitrogen air, and no tax collector has yet been installed at its gate! Now, my honorable professors, please be so kind to humanity as not to obstruct the evidence. On the Norwegian rocks and on the granite of the Giant Mountains I have not only found trees but also every type of grass and herbs with green leaves. These were growing in areas to which neither horse manure, nor ammonium sulfate, nor Chile saltpeter, nor any other nitrogen fertilizer had been supplied. Other people with me see this. Therefore, the side ribs of the stem which have expanded into leaf surfaces so that sunlight may be better absorbed must, in common with *every* type of plant, have the capacity to absorb and condense the atmospheric nitrogen into plant protein.

Please, dear friends, observe once and for all the *damage* which has developed from this disastrous *phosphate-nitrogen fertilizer:*

First, how much new *vermin* on roots, barks, branches and foliage! The fact *that,* and the *manner* in which, plant substance changes or transforms into animal protein, into worms and insects, is physically and chemically explained elsewhere in this book. The simple process is that the hydrocarbons cluster together into fats and combined with plant protein phosphate they immediately produce *nerve fat* (lecithin). This, however, forms the general origin and basis for *every* kind of animal life, let us say *direct egg substance.* Since hydrocarbons as well as phosphates are contained in all cellulose and it has now superfluously also been discovered that not only all plant seeds but also all leaf green (chlorophyl) show real lecithin (nerve fat), one can readily understand why billions of gnats and insects swarm in shrubs and thickets in the summertime as they are being produced by leaves and blossoms. This is a perfectly natural process because, as we have stated previously, nothing remains in the same form. The innate nature of the *ethereal material* (hydrogen gas), which forms the basis for all *organic substances,* is its restless mobility and form transformation. This is an *absolute law without exception* in the organic world. Or can you name an animal or a growth which retains its present form without change? No, it is impossible. But I can tell you something which has never been seen or recognized by a professor and which cannot be found in any book. Listen. Early in spring the *dandelion root* sends its crookedly-spread root leaves to the light. Blossoming time follows in May and later the fruits develop with the pappus crowns. And then? Yes, tell me, what happens then? The dandelion changes quite gradually into *Hieracium* herb. And what happens next spring? The dandelion comes up again! This is a fact which I have observed scientifically for seven years.

"Nothing remains in the same form." This, however, is by no means something rare or sporadic. Every farmer can confirm that after the first cut of the meadows *other* grasses and herbs come up from the same roots according to the season, the change in lighting and temperature of the air. The hay from the second mowing has therefore been given the special name of "aftermath" and where a third cut is achieved even a third kind of grass and herbs grows up which flower in the advanced season. This can also be confirmed by foresters who are held responsible for the increase of underbrush in the forests, namely, hazelnut shrubs and alder, which grow

out of the root shoots of birches, oaks and beeches. Again, nothing remains in the same form.

In the same absolute certainty of these facts I have also observed the process of transformation or metamorphosis of worms and insects. Such a metamorphosis of plant substance into animal substance takes place absolutely according to the laws of growth. Therefore, I do not doubt but that already in Noah's time the root saps of vines which were rich in phosphates produced *vine lice*. This causes no damage anywhere. Sufficient sap still runs to the top to ripen the grapes in the same way as the nectar of all dandelion flower buds produces beetles and in addition also ripens many little fruits. This principle is laid down in the law of form transformation. But it is quite true that since the vineyards have been manured with stable manure and nitrogen fertilizer after the vines have exhausted the soil, the vine lice have appeared in *excessive* quantities at the roots. From this occurrence one should have learned that it does not require nitrogen fertilizer but something else to give new strength to the vines growing on the rocks. Who, for instance, in California would think of fertilizing the vineyards on the rocks with liquid manure? Not a soul - this is as unlikely as if someone would manure the grainfields in Argentina or Romania.

Agriculture professors recommend stable manure and nitrogen fertilizers for the vineyards and hence the *damage*. As the manure hills in the *farmyard* produce innumerable worms - to the joy of scratching cocks and hens - so also does the same process take place on turnip fields and in vineyards. It is the nitrogen-containing phosphate in the liquid manure which transforms itself in a *Proteus-like fashion*.

The agriculture professors now say: "Oh, how terrible! Look at the vine lice! They cause complete destruction; they must be destroyed." The vine lice do no harm at all; they cannot help it that the professors supply the root sap with nitrogen-containing phosphate instead of with *ground rock*. But it is certainly the professors who achieve this condition; they destroy our vineyards and persuade our governments to believe that our grape plants must be burnt so as not to cause damage to our neighbors. And they waste our money because they maintain that we have to buy artificial fertilizer to obtain nitrogen, disregarding the inexhaustible sea of air over our heads. They cause sickness to animal and man because with their sermons advocating potassium, phosphate and nitrogen they systematically - although perhaps blindly and unconsciously - *prepare the soil* for influenza, diphteria, cancer, diabetes, arteriosclerosis, consumption, typhoid, anthrax, glanders, pestilence amongst cattle, foot and mouth disease, etc.

PREVENTION OF INSECT PEST

This knowledge throws the necessary light on the metamorphosis of plant insects and fungi, giving us at the same time the key as to how to prevent and get rid of them.

Where prompt action is required a solution of raw *kieserite salt* (magnesium sulfate) is used. Two pounds dissolved in 25 gallons of water are poured on the soil. Still better is to spread *gypsum* (calcium sulfate) on the soil in spring. In such a case the plants obtain their requirements of magnesium sulfate from the weathered gypsum and mica (magnesium silicate) of the feldspar stone. Yet when insects and fungi already appear in great numbers then the gypsum comes too late, since it works slowly and needs 400 parts of water for its solution, whereas magnesium sulfate (Epsom salts) is already soluble in 2 parts of water. Gypsum added to liquid manure makes it harmless, because it forms calcium carbonate and ammonium sulfate with the ammonium carbonate.

Warning: All copper, lead, zinc and arsenic salts are *poisonous* and *detrimental* to the plant and animal proto-

plasm and should be officially prohibited. The same applies to the poisonous compounds of chlorated hydrocarbons, esters of phosphoric acid and hexachlorcyclohexan. Quit the excessive use of nitrogen fertilizer, then the insects and fungi will quit the plants.

When through centuries of soil cultivation the earth is being depleted of its minerals, being carried away with each crop including, hay, straw, wood, etc., all of these minerals must be *returned* to the soil in the form of *ground rock fertilizer,* limestone, gypsum calcium carbonate, wood ashes, Glauber's salt. The denuded earth eventually contains but loam (aluminum silicate-phosphate). Due to the absence of calcium, magnesia, potash, soda and sulfur the ammonium phosphate of the root bark of the grape vine, in case of drought, transforms into the vine louse (Phylloxera); the phosphate-holding plant juice of potato leaves transforms into the Colorado beetle; the substance of the sugar beet changes into worms; the fruit tree produces fruit maggots and whatever else the host of insects are called. The appearance of worms always goes parallel with the exhaustion of *sugar* in the fruits, because the earths form the indispensable carrier of the sugar substance which is produced by the carbonate of calcium or potash. All farmers should remember that if you want sweet fruit, spread limestone and ground rock on the soil. All else is taken care of by Nature.

"Every crop removes permanently a certain part of the supply of the necessary plant food. In addition to nitrogen, phosphorus, potassium and calcium it is absolutely necessary to keep up a sufficient supply of fresh organic material (humus) in the soil, or the use of fertilizers may result in more harm than benefit." (Smith's College Chemistry, 1935 edition.) "Nature betrays no heart that has faith in her."

THE EXCESSIVE USE OF NITROGEN FERTILIZER AND ITS DANGER

From *The Last Chance,* (France-Harrar 1950, Munich): "The teachers of agriculture and certain industrial interests set up the theory that for their growth, plants require minerals in water-soluble form in order to produce plentiful crops. Further, they claim persistently that it suffices to supply the soil with potash, phosphoric acid and nitrogen as a replacement for the minerals carried away with each crop, all other minerals being plentifully available in the soil, so they claim! This is a physiological impossibility because 'Nothing can come out of the sack except what has been put into it.'

"'Complete fertilizer' has since been promoted, namely, that one tries to limit the soil acidity and silting by means of phosphoric acid, potassium and nitrogen (12, 7 and 12 percent), sometimes coupled with 15 percent of calcium. Yet we must insist that the proportion of the indispensable minerals be correctly determined according to the latest and revolutionary experiences and that this information be given to the farmers. If the soil is not fertilized properly with *all* the needed minerals, the damage thus resulting is a damage affecting *public health* and eventually it also effects the fertilizer business as well as the nutrition, imports and currency of a country. The ripe, truly-fertile humus contains all these substances, not in maximum but in *minimum* number. How else can you explain that first-class humus garden soil never contains more than 2 percent potash, on the average 1.5% phosphates, not more than 1 percent nitrogen, often 0.1—0.3 percent. Why it is claimed, nevertheless, that soil below 3 percent nitrogen content should be nitrogen-hungry can not be explained. The blue poisonous common monkshood *(Aconitum napellus)* grows around manure ditches and puddles and on all animal waste. If it is planted on leaf mold soil it develops

far less of its poisonous and highly effective alkaloid aconitin."

The manufacturers of nitrogen fertilizer guarantee a certain content of soluble potassium and nitrogen and water-soluble potassium, yet they do not guarantee any fertility and this they cannot do because the water-soluble elements are dissolved by the rain water and run away from the plants. Neither can they guarantee *wholesome* food plants for the reason I shall explain later. They claim "big crops" only.

On the other hand, the fertilizer mixtures of ground rocks need no guarantee for a certain content of potassium and phosphoric acid, instead, they *guarantee fertility,* because the aluminum phosphate (clay) and the alkali silicates and earths of porphyry and granite *do not run away* in the rain water and are consumed only in the proportion that they are transformed into plant substance. Indeed, herein lies the secret of the use of *silicic bases* that they are *not* washed away by the atmospheric carbon dioxide of the rain water, on the contrary, now they reach full efficacy.

Proof: Pure potassium carbonate dissolves and runs away in the morning dew when a pinch of it is placed on writing paper and laid overnight on a window sill. The next morning, even the same evening, the chemically-pure potassium carbonate is apparently *dissolved* into water. Again, the clean window panes of my pavilion after a 14-day rain became *blind,* because the soda and potash silicate of the outer glass layer became dissolved by the carbon dioxide of the rain water and in their place a thin coat of silicic acid was left refracting the sunlight into its rainbow colors. For the same reason the cellar windows become blind by the moist cellar air.

It is evident that if the window pane were finely powdered and exposed to the rain, the attack points of the water would be increased endlessly and thousandfold amounts of potash and soda could be dissolved in a short time. Such a glass mass is exactly the *feldspar* of the *granite* and therefore we can see on granite rocks after rain within a week a profuse, bountiful vegetation. Ground rock fertilizer is good everywhere and is effective everywhere, and for its use no special rules of caution are required because its content of potash, soda and phosphoric acid exists in intimate union with clay and silicic acid, each atom being enveloped by them, so that only the needed small amounts are consumed.

Yet the simplest mind will say that, when at least twelve minerals of the primeval rocks are used for healthy plant growth, eventually all of the twelve minerals will be used up and cannot last forever because, again, "Nothing can come out of the sack except what has been put into it." And, indeed, an eye-blinding, abundant plant growth is noticed. The reason for it is the chemical property that the nitrogenous, volatile ammonia NHHH *can take the place of the fixed alkalies,* without altering the visible form or structure of the plant. Yet such nitrogenous plants cannot withstand rain or wind, lie on the soil and start rotting. This is clear since we know that it is the minerals or ash constituents of the plants and fruits (also muscle flesh) which provide them with the required durability and cohesion.

Unfortunately, the crucial point of this false theory is the fact that such plants and fruits *no longer are wholesome* but are *poisonous,* being of a deficient *quality.* However, this chemical truth is being silenced by the teachers of agriculture and industrial interests. And since then the *progressive degeneration* of man began. All food is sold by weight (quantity) instead of by an official standard of *biological quality.* Herein lies the basic danger of our *malnutrition* followed by an ever-increasing host of ailments.

Please remember that all nitrogen compounds have the chemical property to readily regroup themselves, to displace themselves against one another within the atomic group. This accounts for the extraordinary transformation ability of *all nitrogen-holding protein groups;* it explains the endless variety in the shape, form and structure of all organic beings

Since all individual groups of the plant and animal protein (albumin) are of an active, *movable* and volatile nature (carbon dioxide, hydrocarbon and ammonia), evidently they get their *firmness* and *resistance* to chemical decay only by the intra-atomic deposit of the minerals of primeval rocks.

Still, it is a fact that the alkalies (soda and potash) as well as the earths (calcium and magnesia) can replace one another up to a certain point without altering the form or habit of the plants; however, the *quality* is influenced thereby. For instance, calcium makes the stem brittle, whereas potash and soda provide flexibility. Flax grown on granite soil is preferred because of its firmness and durability in comparison to the fragile linen produced from flax grown on limestone soil.

Again, ammonia NHHH has the chemical property to take the place of the fixed alkalies as the ammonium-alum already proves, a fact that is not fully understood in agriculture or nutrition. The tobacco leaves grown on the calcium soil of the Antilles give a white ash. On the other hand, the tobacco grown with nitrogen fertilizer and manure is overladen with ammoniacal nicotine and plant protein and produces a coal-like ash instead of containing malic calcium as does high-class tobacco. Wheat and other cereals grown with nitrogen fertilizer cannot withstand a strong wind, they lie flat on the ground due to their ammonium content which has taken the place of potash, soda, calcium and magnesia, causing the loss of firmness and resistance. Therefore, this mutual assistance of the earths and alkalies to replace one another yet maintaining the visible shape of the plant furnishes the necessary explanation of why the damage done by the wrong method of fertilizing became apparent only during World War I. But now is the beginning of the end.

The beer brewers complain about the quality of the malt made from nitrogen-grown barley and the millers complain that the nitrogen-grown grain smears the millstones. In Europe without the addition of overseas grain grown on granite or porphyry soil the native grain cannot be ground, neither can "enriched white flour" take the place of whole-grain flour. The cereals rival potatoes in starch content. An American newspaper set a prize contest for the largest potato. It was won by a farmer whose potato fields lay at the foot of a granite mountain. In accordance with this, the potatoes grown here with granite meal, calcium and gypsum have a smooth skin and a rich content of starch and minerals, they are not scurfy or fungus-ridden as are the nitrogen-grown potatoes.

A certain amount of nitrogen-holding protein is present in all plants, yet from where do the *alpine herbs* with their *curative power* get their nitrogen which supply the children with such wholesome milk? And from where do the trees take the nitrogen for their leaf green (chlorophyl) and the oak and beech woods the nitrogen for their protein-holding acorns and beech nuts? They all absorb as much of it as they need from the air.

The chemical inclination of the nitrogenous protein in a humid state to disorderly *disintegrate* into smaller groups and *separate* themselves is called *putrefaction.* Characteristic new groups appear now having in part a foul smell due to the integral volatile ammonium carbonate, producing in part *poisonous* split products of form-destroying property, because the *poisonous prussic acid ammonia* (ammonium cyanide) is liberated. *Intense nerve tension* can produce snake poison, canine madness and insect poison; *atmospheric heat:* spleen poison, pox poison, pest poison, cholera poison; *natural decay:* cheese poison, sausage poison, corpse poison (ptomaine). All these prussic acid poisons can effect a similar decaying process in case of bodily contact (infection).

The excessive use of nitrogen fertilizer carries the main guilt of the diseases of men, animals and plants; ground rock and compost fertilizer is the only natural method to create wholesome plant food.

It is as clear as the sun that when a cow is fed with fodder rich in ammonia

but lacking the earths, her blood cannot be of healthy quality nor can her milk which is but transformed blood. When an anemic mother is unable to nurse her baby due to a qualitative or quantitative lack of blood and feeds her baby inferior cow's milk, we need not wonder at the increasing children's diseases. Instead of accusing our own biochemical ignorance we put the blame on the poor bacteria or a new kind of virus. Babies fed with watered milk lacking the necessary amount of soda, calcium, iron or sulfur are subject to a disintegration of the lymph protein called *smallpox* (pustules) or are susceptible to a rapid putrefaction formed in the ulcerations of the throat called *diphteria,* or school children become afflicted with *infantile paralysis* thanks to their nutrition lacking the life-giving earths and salts.

And how do cattle get tuberculosis? From fodder lacking the earths *and* salts! In 1938-40, the cattle of Central Europe were plagued with foot-and-mouth disease (a stagnation of the lymph similar to the human smallpox). After a careful investigation of the slaughter house records it was found "that the intensive use of ammonia manure was followed by an increase in cattle tuberculosis (lung consumption), and where cattle had little chance to graze on the open pastures, abortion also increased." On the other hand, cattle in the mountains grazing on herbs grown right on the rocks were less afflicted.

Even adults do not fare any better. Just look at the increase in *diabetes,* which in many cases can be cured by calcium phosphate, yet more thoroughly by the systematic use of *all* mineral constituents of the blood.

The blood gelatine is subject to chemical *decay* all the easier when there are *fewer cementing* minerals provided for its cohesion. Therefore, the subject of *ground rock fertilizer* is not only of great importance for the growth of enough cereals, but it is conceivably the *most vital subject for the maintenance of the health of all mankind.*

In flat lands the upper soil crust through long cultivation has been *depleted* of its minerals because they wandered off to the distant cities in the form of cereals, all kinds of field produce as well as milk and meat, leaving but clay silicate in the soil. The time comes when the farmer holds money in the bank for his crops, yet the soil year by year yields smaller crops poorer in quality. Rather than the farmer spreading fresh rocky material out of which nothing has yet grown and which therefore still holds its original productive force onto his acres, certain good friends come to the farmer and say: "Give me your money and I will give you nitrogen fertilizer, because I know how to produce large crops." Obviously these same friends do not tell the farmer that with the grinding and mixing of primeval rocks only scanty wages are earned, but that the sale of nitrogen fertilizer is more profitable.

Since then the farmer year after year has paid his money for wrong kinds of fertilizer and he, as well as his land have become more and more impoverished. His crops become larger in quantity but poorer in quality; by means of enormous subsidies the government hopes to assist the plagued farmers; the manufacturers of fertilizer spend millions for advertising, propaganda and sales, while at the same time the most natural method is simply ignored. Hand in hand with it the public health goes downhill, the people cry for more stimulants such as coffee, alcohol, animal protein, nicotine, aspirin and a host of similar drugs, only because the modern nitrogen-overloaded foodstuffs *lack the most important basis for a new vital activity and health,* namely, the protein-cementing, red-blood-building and nerve strengthening *minerals of primeval rocks.*

On practically all fields stones lie around which through the dissolving soil moisture have taken a more or less round form instead of their original keen-edged shape. These stones are usually laid at the border of the fields because they damage spades and plows. But when these stones are heated in an oven or thrown in a fire for half an hour they readily break. For this purpose manu-

facturers should build handy *rock crushers* enabling farmers to grind their own fieldstones and those from neighboring quarries.

Eventually somebody must make a beginning when an old truth already known in Aristotle's time is unearthed or a new truth is brought to light. Fortunately, we no longer live in the time of Galileo who had to *swear* off the knowledge of the Canon Copernicus of Frauenburg that the teaching of Ptolemaeus about the motion of the sun around the earth is wrong.

The excessive use of nitrogen fertilizer cannot produce wholesome food for the following reasons:

1) Nitrogen fertilizer produces, indeed, an eye-blinding luxuriant plant growth since the volatile nitrogenous ammonia NHHH according to chemical law can replace potash, soda, calcium and magnesia without altering the visible form or structure of the plant. But such nitrogen-overladen food plants unfortunatey no longer are wholesome, they are of deficient quality. What provides the animal organism with *resistance* and *cohesion* is not the volatile ammonia, but the minerals of the primeval rocks, which protect the ammoniacal protein (albumin) from *premature decomposition.*

2) Nitrogen fertilizer again is the main cause of the excessive transformation of the ammonium phosphate of the plant protein into *insects* and *fungi,* because such nitrogen plants lack the earth sulfates (calcium and magnesium sulfate) which regulate and restrict the growth (metamorphosis) of the ammonium phosphate into insect and fungi plasm, as explained in this book.

3) All conditions for succesful agriculture can be fulfilled by human effort, especially by suitable soil material and efficient irrigation in combination with the inexhaustible air ocean. One thing however, we do not have in our power, and that is the *sun heat* and this is the most valuable and effective of all ingredients, because without sunshine neither the grape, nor the potato, the sugar beet, the apple or the corn can ripen. All efforts of the farmer would be in vain.

4) Since we perceive the cyanogen CN and water HHO as the basic substances for carbon dioxide COO and ammonia NHHH, it is understandable that where carbon dioxide is present in chemical union the nitrogen of the air is held readily in order to combine with the completing carbon. Again, this explains the easy chemical union of the atmospheric nitrogen by the hydrocarbon-carbon dioxide CHH COO of the leaf substance-cellulose to form the nitrogenous leaf-green-protein (chlorophyl) COO CHH NHHH.

5) This chemical process has taken place ever since our earth began to revolve. Genesis 1 : 12 - "And the earth brought forth grass, and herb yielding seed after his kind, and the tree yielding fruit." In direct denial of this physiological truth big industrial interests still make such claims as "Nitrogen, the motor of plant growth, plays a decisive part in keeping the soil provided with cotton's mineral needs." (From a full-page, color advertisement in one of the largest American magazines, September 1960.)

6) All organic substance is constantly flowing, moving, changing, thanks to the dissolving and liquifying force of the alkalies soda and potash. If the body lacks these vital blood salts, stagnation of blood beginning in the hair-thin capillaries takes place, followed by a chemical decomposition. Ammonia is liberated from the blood which has a *paralyzing,* even poisoning effect on the nerve functions (auto-intoxication by the production of virulent ammonium cyanide). Please remember that all nitrogen compounds have the chemical property to *easily regroup, even to separate themselves,* therefore, the malnutrition of man and animal with such nitrogenous food lacking the cementing minerals is, according to chemical law, followed by *decomposition* of the blood and lymph protein.

Ground rock fertilizer and compost are the only *natural* and *complete* means of creating an abundance of wholesome food plants. It offers the following basic advantages necessary to life:

1) Fields with little return are made

more fertile by the use of ground primeval *rock* and *compost,* plus sufficient irrigation.

2) Numerous hands which are willing to work find employment and all needed cereals can be grown on our own land.

3) Agriculture again becomes profitable while the production *costs* are reduced to the *lowest level.*

4) Instead of food plants and fodder of poor quality, *wholesome* food of highest *quality* rich in minerals is grown. Thus a large part of human and animal *epidemics* and *diseases* are prevented. It is quality that satisfies and counts, not quantity.

5) The more nitrogen N our food contains the more the *ammonia* NHHH therein prevails against the *protein-cementing earths,* thus the easier the disintegration of the blood gelatine takes place.

6) Healthy plants rich in minerals become resistant against an excessive growth of *fungi* and *insects* which thrive best on the earth*less* ammonium phosphate. Minerals are a *poison* for all fungi, insects and worms.

7) Health or sickness of man, animal and plant *begins* with the kind of fertilizer and compost we use on our soil; this being of national importance it is imperative that the method of fertilizing is subject to the law and control of the government.

8) The cycle of life beginning with soil to plant, animal and man back to the soil *cannot be broken* without serious damage to our economy, public health and social welfare.

9) By the growing of sufficient wholesome grain on our own land to satisfy *all,* humanity and morality, health and happiness, vitality and prosperity, are assured.

10) Primeval *rock* and *water* form the most concentrated *egg* substance which transform themselves into sugar and bread, milk and flesh to guarantee us life, strength and health.

11) The key to the *prevention* of disease is a better understanding of the chemical processes of life.

MACROBIOTIC
or
OUR DISEASES AND OUR REMEDIES

Introduction

As the introduction to an opera brings together the motives contained in the musical work, so I wish to state throughout this book I have ascribed the origin of internal diseases to a *diminished electric force*. This is in accordance with the proven unity of forces, which I have also applied to our vital force. The cause of this diminution of the electric force may be found:

a) in respiration of oxygen insufficient in itself, or
b) in the more difficult absorption of oxygen needed for the fulfilment of our vital functions, due to a reduced number of red blood corpuscles, or
c) in strong emotions of the mind, or
d) in atmospheric influences, or
e) in the reduction of the nerve tension in particular regions of the body due to a partial check in the blood circulation.

As a tangible cause of the diminution of the blood disks which absorb the oxygen, I have pointed to the insufficiency of the content of sulfur, calcium (lime) and iron contained in many nutriments. In particular I have stressed the loss of electrifying blood salts, which is not sufficiently compensated for, by our daily food, as the most frequent cause (and one hitherto not sufficiently considered) of reduced electric tension of the nerves and, thence, fatal diseases.

This daily loss of blood salts is thoroughly natural, because *urea,* the combustion product of respiration, *requires mineral salts in order to combine with them into permanent compounds of double salts.* If the urea does not find enough mineral salts in the blood, it changes by the chemical absorption of water from the venous blood into carbonate of ammonia, which produces paralysis of the nerves, blood poisoning, and even leads to putrefaction. Various lesser as well as more intense degrees of chronic sufferings are connected with this state. Either singly or together, the said injurious influences manifest themselves in anemia, chlorosis and dyscrasia, in pulmonary consumption, dropsy, rheumatism, diabetes, cramps and in inflammatory conditions.

With regard to the urea CO N_2H_4, it is the partly-unoxidized combustion product of 2 gelatine sugar COO CHH NHHH, resulting in 2 ammonia and 1 carbon dioxide in dehydrated form of urea $CO \left| O \begin{matrix} H \\ H \end{matrix} \right| \begin{matrix} HHN \\ HHN \end{matrix}$ and in part the combustion product of the flesh bases, creatine, sarkin, xanthine and urate of ammonia in their physiological foundation.

Thus may be understood why all of us are subject to the consequences resulting from the liberation of ammonia from stagnating blood or from urea in the form of *catarrhal affections,* when our blood serum does not contain the natural protection and defense in a due quantity of minerals. What a luminous significance is thus obtained with respect to the children's catarrh called diphteria! This begins with stagnation of the blood in the thymus gland, whence the products of the putrefaction of the blood albumin are spread with their infecting force over the whole vascular system.

As the children of a family are subject to the same conditions of nutrition, only the first case of diphteria is needed in order to carry away all the children and also the mother. For when the mother is confined to the sickbed the regular working of the household stops. For instance, healthful salted milk soups and flour soups are not provided. Yet the respiration takes its usual course and, in consequence, urea is liberated,

which carries off the blood salts in the excretion of the urine. These salts, already deficient, are diminished day by day. One child dies; a second, badly cared for, has to take to its bed; the mother watches over each, and in her grief she does not think of eating and drinking while she nurses her children and finally she dies because no physician prescribes for her the physiological salt water which would have saved her.

We cannot deny, however, that a certain guarantee against various affections is offered by a vegetarian diet, because it is richer in mineral elements than a meat diet, provided the food plants are grown on soil not fertilized with stable manure, but on natural *mountain soil,* or at least on fields preserved in their virgin fertility by fertilizing with finely ground rock. However, vegetarians remain subject to damages caused by changes of weather and by emotions which affect the nervous system, causing stagnation of the blood with its pathologic consequences. Besides this, vegetarians also are subject to hereditary tendencies, which may be restored and normalized by improving the blood constitution by means of preparations of iron, calcium and sulfur, as we can see, e.g., in scrofula, that out of new, red blood the whole body can be rebuilt.

With my endeavor to explain the chemical processes of certain pathologic conditions, I hope thus also to have furnished to practicing physicians as well as to interested laymen a sort of thread of Ariadne which will help to direct them through the labyrinth of diseases that has hitherto prevailed and which will considerably promote the boundaries of the healing art.

Hermsdorf unterm Kynast, 1900
Germany

Julius Hensel
Author

What Does Man Need to Live and to Stay Healthy?

The wise men of all times have come to the conclusion that all knowledge can come from the study of nature. A similar observation by Descartes reads: "When the human race can be made more perfect it is the art of healing which shows us the way." Art of healing and natural science are two interconnected principles, and the foundation of all natural science is chemistry.

In regard to my method of healing, I state: "Non omnia possumus omnes." (No one of us understands everything.) My theory should not be considered as being sufficient by itself, but it is a very important fulfilment from a biochemical point of view of the general factors of healing: air, light, water, massage and physical exercise. And since the success of this method put into action speaks for its correctness it would be a good thing if it became better known since it does not need to fear publicity and it will serve as a guide for future medical students.

My method would have merited reliance long ago if it had not the big drawback that it lacks mystery. I do not teach unclear things and I do not ask blind faith because I base my teaching on controllable physical and chemical natural truths. There is nothing complicated in my system; it is of such simplicity that it amazes many who grew up in the belief that God let grow a healing herb for each disease and the knack is just to find the right one. On the contrary, I assert that the universal remedy is healthy blood, and healthy blood comes from health-serving nutriments.

Therefore, before all, I advise a suitable nutrition and this means both directly and indirectly; indirectly inasmuch as it is important to avoid unwholesomeness. Nutrition must not be defined in an one-sided way. Eating and drinking surely are necessary in order to supply new substance to the organism to replace the consumed material. Eating and drinking absorb but a relatively short part of our daily time, the

larger part being filled by physical and mental activity, i.e., the suitable use of the food substance which is being assimilated.

Everbody knows that reason and mind furnish the driving power for physical work, but naturally in many different forms and directions. It is all according to the endowment of the *germ quality* received from both parents in the electric moment of conception, which is the decisive factor in the vitality of their offspring. Many a man is gifted with so much ability and intelligence that, like a fountain, he is able to transmit some of it to others and he also feels the desire to do it. He acts as a driving and directing force upon others who receive lesser mental capacity and who have the need and are satisfied to be taught, guided and directed by others. But regardless of the capacity of the individual, the minds of all men need nourishment the same as their bodies; however, the food should be carefully chosen.

This means that for the mind as well as for the body the avoidance of harmful influences is an important requirement in staying healthy because the mind and spirit can through bad food be led onto false roads, become corrupted and ruined the same as the body. These bad foods are the passions. Grief, greed and selfishness, ruthlessness, licentiousness and self-indulgence, political and social false teaching (Marx and Engels) are transmitted like an epidemic to others who originally had no inclination toward them.

In other words, any atempt at *communistic equalization,* leveling, massing and regimentation of the spirit goes against nature and will result in failure in the long run. On the contrary, only personal initiative, personal interest, creative thinking, the *vitality* and the *competition of all classes* can lift and further our civilization and bring peace and prosperity to all mankind. La Rochefoucauld said: "Personal interests are the basis of nearly all our actions."

It follows that our duty consists not only in keeping our body machine in orderly operation through suitable food, but because the body is directed by mind and spirit, good common sense must be helped to control our lives again. With common sense and open eyes we must plan our path by observing nature and not by reading books written by medical authors whose chemical knowledge is insufficient. From the unadulterated open book of nature, from the laws of physics and *chemistry* as the master of all natural science, we must learn and recognize health, sense and purpose for our lives.

Chemistry could not have been utilized earlier in the advancement of medical science because the foundation of knowledge of the chemical processess of life (physiology) began only in 1774 when the Englishman Priestly and the Frenchman Lavoisier discovered that we live by means of a chemical *combustion* process. Our physical substance unites with the air which we inhale and by the breathing process the bodily substance is burnt (oxidized) in the same way that wood, by its combustion, heats the stove and leaves ashes. By breathing, the burnable hydrocarbons of the body are burnt into water vapor, carbon dioxide and nitrogen gas. The gaseous combustion products are exhaled through the lungs, whereas the ashes (minerals) become dissolved in the blood serum and are discharged as urine by way of the kidney function. When the respiration of air stops, we suffocate, that is, our lamp of life is extinguished, the same as the flame of a petroleum lamp extinguishes if we prevent the air from reaching it. It is clear that the burnt body material must be replaced by new material, analogous to the streams that flow ceaselessly to the sea, being fed by numberless brooks and springs coming from the mountains and which in turn receive the water from the sea, whose vapor under the influence of the sun heat rises into the air north and south.

The springs and rivulets which supply our body with new strength are the delicate chyle and lymph vessels, through which passes the new material derived from the chyme as it proceeds through the alimentary canal.

D UNIVERSITY

Now, if certain constituent parts essential to the normal cohesion and function of our body substance are wanting - in other words, if the consumed and used-up body material is not adequately replaced - our physical and mental power will gradually diminish, which continued for a long time, will on a slight impulse inevitably assume the form of serious sickness.

What kind of constituent parts are wanting, I have never doubted for a moment. It could never be the gaseous parts, for such are merely the four substances: carbon, oxygen, hydrogen and nitrogen, which are contained in sufficient quantities in *all* nutriments, with the exception of distilled liquors which contain no nitrogen; but then Providence has not given us liquors for food.

What had to be considered were the *earthy* constituents with which the aforesaid four substances are chemically united, which, remaining as ash products in the blood resulting from breathing, are continually secreted in serum as urine. The natural method of healing which we shall here discuss is based upon this foundation. In it is nothing really novel, for the method has long been practiced under the name of folk medicine, though it has not received professional recognition, perhaps because it lacks the veil of mysticism. Medical science still labors under a great disadvantage. Mechanical and electrical engineers, chemists and the members of other professions come from the ranks of scientific schools and the sciences to which they have devoted themselves have advanced with gigantic strides during the last century. Medicine has, however, haughtily refused to admit to its study any students except those that come from classical Latin schools and thus the science has consequently made little progress.

Today, medicine as taught in the schools is no further advanced than it was in the time ob barber Jenner who, in the year 1770, before oxygen was known, consequently no benefit could be derived from the application of chemistry, studied surgery and pharmacy in London. Jenner, while engaged in compounding the apothecary's drug called theriaca (an antidote to poison), learned that it had been invented by King Mithridates VI who, being of a suspicious turn of mind and living in constant dread of being poisoned, sought to counteract any attempts against his life by systematically making his body immune against poison and so compounded theriaca. Such a story once heard is never forgotten. Jenner did not forget it. While he was earning his bread in Berkeley by bleeding, by applying leeches and by cupping, a peasant woman told him another story. She said to him, "Milking cows which have smallpox on the udders is a good thing to prevent one from getting smallpox. My dairy maids have an eruption after such milking, but they never have smallpox." These two stories suggested to Jenner the remarkable medical system of inoculating with vaccine (putrid cow's lymph), for which Jenner must be excused; because he still lived in the age of mysticism when physiological chemistry was an unknown thing. Since Jenner, chemists have detected the oxygen causing blood circulation, have discovered that healthy blood is a universal medicine resulting from wholesome nutriment and that the organism must be regarded as a *whole unit*. Upon this knowledge the chemistry of life was founded as taught by myself.

During this evolutionary process the protein-cementing force of the ashes (minerals) of our body was not fully understood. Professors in medical school taught that the human body consists of the four elements carbon, oxygen, hydrogen and nitrogen, with the symbols C, O, H, and N. This, in more understandable chemical language means that our body consists of carbon dioxide COO and ammonia NHHH, which contain at the same time the elements of water OHH and of oleine CHH. Further, we were told that our body also contains chlorine Cl, fluorine F, phosphorus P and sulfur S. These four substances can be transformed into gases.

Mention was also made of the earthy constituents of our body, potash, soda,

calcium, magnesia, iron, manganese and silica, but we were told that little knowledge has so far been attained of the part performed by these mineral substances in our organism and accordingly they were insufficiently considered in the theory of life and of subsistence. Thus, teachers of physiology, having no firm foundation on the earth, build up a system "in the air," and seek to heal us by febrifuges, antipyretics, quinine, morphia, cocaine, sulphonal, antibiotica, wonder drugs, which are devoid of the earthy matter which maintain life and consist only of spiritual or gaseous matter, in truth they are hostile, evil spirits. So we are lifted from the earth to be strangled "in the air," as Antaeus was by Hercules!

The blinder the professors of medicine are, the more instruments they bring with them to the sickbed. They come armed with a stethoscope to hear with, a plessimeter to tap with, a thermometer, sphygmograph, probe forceps, ear and eye mirrors, a laryngoscope, jaw and nose mirrors, catheter, bougies, syringes, a microscope, a galvanic apparatus, a chest of re-agents or have recourse to the surgeon's knife. And what is the result? Biochemistry teaches us that at last *earth,* water, air and sunshine heal everything.

In contrast to such course, folk medicine did not wait long before seeking earth and ashes as a remedy, but right at the beginning used earths, ashes and water, as, for example, for curing fever or cramp. In cases of undulant fever people drank urine from healthy people which contains the ashes and the salts which remain as the combustion product of our organism in breathing and which, when absorbed by the lymphatic channels, restore the body its strength and tension. Real ashes, using the word in its common sense, are still used by people as medicine and with success.

The ashes of burnt magpies and those of the hoof of the elk are, it is said (1900), used even now in the Deaconess Institute in Dresden in the treatment of epilepsy, though this remedy has disappeared from the pharmacopoeia. Such ashes are indeed efficacious, for both bird's feathers and the hoofs of ruminants contain sulfur and it is the sulfur together with the lime of the bones, and the potash and soda compounds of the blood which soothingly help to balance the restless action of the phosphate-holding ashless nerve material. It is true that to use bird and hoof ashes in order to obtain these natural remedies is an unnecessary detour since with the same success we can use the ashes of beech tree leaves, which contain all the ashy constituents needed for man and the elk alike. Does not the elk eat beech leaves and build up its bodily substance therefrom?

There is this difference between mammals and worms - the first need earthy material in larger quantities than do the latter.

That earthy substances are efficacious in epilepsy is shown by the fact that lack of salts and earths leads to cramp. Napoleon I, for instance, who had a restless brain, suffered from epileptic attacks. Both his restlessness and his epilepsy can be attributed to his diet, for he used to eat daily the brain of a freshly-slaughtered ox. Sulfur and lime (calcium) are wholly wanting in the brain substance, yet these constituents are absolutely necessary for the formation of new red blood corpuscles which chemically combine with the nerve-quieting oxygen.

Napoleon also suffered from the itch. Its cause was the same. Through a sulfur deficiency part of the gelatine-yielding skin tissue interlaced by the nerve ends transformed into worms (itch mites), just as worms are produced by the intestines of infants when the mother's milk or that supplied by the cow is poor in lime and sulfur.

Lime and sulfur, indispensable to man, are injurious to worms. The *silkworm* furnishes us with a striking proof. This worm lives not on beech tree leaves rich in earthy material, which would be a poison to it, but upon mulberry leaves which contain but a little earthy matter. The great difference between the two kinds of leaves is shown by the proportions of their *ash* analysis:

	Sulfuric Acid	Phosphoric Acid	Silicic Acid	Potash	Soda	Calcium	Magnesia
Beech leaves	21	24	195	30	3	258	34
Mulberry leaves	1	12	41	23	0	3	6

The significance of these figures lies in the fact that the beech leaves contain five times as much mineral substance as the mulberry leaves with the aggravating condition that the calcium content and the sulfuric acid content of the beech leaves are respectively 86 times and 21 times as large as that of the mulberry leaves. It really depends on the *absence* of these two substances to a large degree when worms will develop, including intestinal *worms* and *parasites*.

This is an outstanding illustration how ground rock fertilizer is the most natural method to grow healthful food plants and at the same time to restrict and regulate an excessive growth of all kinds of insects, parasites and fungi, without any poisonous effect to plant and animal life by chemical insecticides.

It is not meant that mineral substances alone and exclusively provide a panacea for all diseases - such an assumption would be absurd. All that is here asserted is that they must never be lacking when a certain degree of physical resistance is desired. It is certain, nevertheless, that there are other factors which play an important part in health and disease. Apart from diet, I mention climate, change of weather, nature of occupation and above all, the emotions. The last undoubtedly occupy the first place amongst factors causing disease and we should not evade their consideration. Still, we shall find that their reaction also amounts to an electrochemical process. For this reason I must ask all medical practitioners to study the physical-chemical structure of our organism from other points of view than those which have hitherto been customary in anatomy, physiology, pathology and therapeutics.

THE ANATOMICAL STRUCTURE OF THE BODY

I once looked down from an elevated seat in an anatomy theater at a heap of bones provided for the lecture. Among these, I noticed what appeared to be an ostrich egg and I silently asked myself what purpose it served among the bones. At the end of the lecture I inspected the egg more closely and discovered that it was the thick oval-shaped skull of a Negro reposing on its apophyses, and when viewed from above it could easily be mistaken for an ostrich egg. From that day on I have considered the skull as an eggshell for the brain contained in it and whether my fellow creatures be tall or short, I look upon them all as *walking eggs*.

The external resemblance of the human brain to the yolk of an egg is indeed striking in the highest degree. The similarity of the blood vessels in both the larger and smaller yolks of the ovary of a fowl to those of the arteries in the hard membranes covering the brain of a fetus and the *Processus falciformis* of the dura mater is very remarkable. I invite my readers who possess Heitzmann's *Descriptive Anatomy* with illustrations, Vienna, 1875, to turn to Figure 517 and place the boiled yolk from the ovary of a hen beside it. They will be astonished at the absolute likeness.

Even in its matured form the brain resembles a much-furrowed egg yolk, but one which has sent out a stalk or stem, the spinal cord, from which issue numerous ramifications which partly grow together again and again separate as, for instance, the nerve plexuses of arm and thigh. From all the ramifications finer branches issue which eventually end in muscular tissue, a prototype of the division of an *electric current* for the service of a thousand incandescent lamps.

A newborn child is chiefly a mass of brain with merely a weak appendage.

The eggshell is still open. That the appendage grows rather quickly, and is apparently the only movable part, need not deceive us. That a skull-like bony substance is afterwards formed and that numerous little brains (ganglia) are developed, like relay stations, only confirms the main fact that all the additions are merely the continuatives, the offshoots, the radii of the substance of which the great brain-egg is composed.

To understand our organism we must take the *nervous system as our foundation* and then construct the system of descriptive anatomy upon decidedly simpler and more harmonious unitary lines than has been the case so far. If the structure of the human body is to be made intelligible it will be necessary to consider the form of the whole as dominant, and the separate parts which may be detached from it must not be regarded as forming the constituent parts any more than one should regard a tree as produced from the splinters which have been chipped off it with an axe. But before proceeding further, I think it would be well to examine critically the old method.

The Old Cellular Theory. It is believed that the human body and that of animals, as well as the vegetable organism, are built up of separate so-called cells, each leading a separate individual life, though all in a certain way are under one general rule, similar to the members of a coral colony. Indeed, such cells may be seen with a microscope in several body tissues having apparently circumscribed limits. However, this does not hold good for the entire body tissue, especially not of the fluid blood plasma from which, nevertheless, *cells issue,* nor does the stomach juice, the bile fluid and the pancreatic juice contain formed particles (cells), yet they are of highly living efficacy. And both snake poison and vaccine poison show no cells. The cause of diseases exists more correctly speaking in the *formless juice* (lymph and blood serum), so that we must absolutely return to the old *humoral pathology* (humor=fluid, everything flowing). If, then, the formless plasma is the fundamental matter from which the cells originate, as snow crystals originate from vapor, the cells cannot lay claim to be considered primary. Rather, we must assign the chief part to the mother substance, to the general fundamental material from which they spring and take this as our first point of departure in endeavoring to arrive at a correct understanding of organic growth and of the entire physiological process.

The *cell* and its contents represent a certain sum of movable component parts which, according to circumstance, may be smaller or greater. And they have various shapes which indicate that the cells adapt themselves to their surroundings and to the powers exerting influence on them. These "atomic masses" as I prefer to call them, form a denser grouping of their elements on the periphery and have fixed limits in relation to a contiguous similar mass of aggregated material. This is in accordance with the fundamental law of *electricity* that it always collects on the periphery, where it acts by attraction and condensation.

As to the power which holds such atomic masses together for a *certain time,* not only within themselves but also to each other, we have the universal law of attraction between opposite electrified bodies and of repulsion between like electrified bodies. Consequently, the cells have different opposite limits or *poles,* so we may easily deduce their subordination to the ruling law that the dissimilar poles come together forming in a certain direction *connected rows* of similarly-formed cells which act as a central axis around which new groups of different-shaped cells in layers are formed. The layers cover the axis like a coat or rather like a galvanic casing, in the sense that such a casing must be regarded as composed of *similar* but not of exactly *identical* material.

In order to understand the nature of electricity which accumulates on the periphery of a sphere or at the ends of a wire, we must recognize some *central power* of causation which propels the electric fluid centrifugally, for of course no action can originate in itself. Such a central point of departure governing the electric operations within the circle of

its activity, as the sun governs the course of the planets which gravitate around it, may be likened to the mathematical *center of gravity* of any given coherent mass. Even in a hollow sphere we must assume the existence of an *electric center* at the very point where no traces of electricity are discernible.

The governing force of this electric center acts for some distance as a *repelling power,* but it is necessary that concentrated material should be at its disposal for the instantaneous transmission of its electric commands to the next atoms. Whereas the repelling power extends to a considerable distance, the *power of attraction* is limited to the immediate proximity and to a limited number of atoms which, like obedient servants of the mistress of a house, perform what they are commanded. I believe that we may in this manner satisfactorily account for the diminutiveness of those atomic masses called cells. The uniting power of an electric center with regard to loose individual atoms, only extends over a certain zone, beyond which the dominance over another independent electric center begins. There is no reason to doubt that the entire *universal space* is occupied by such *neutral centers of electricity* governing certain atomic masses which are in harmonious relation to other contiguous atomic groups.

Let us consider the *heart* as a center not only on account of its power of *attraction,* but also because of its repelling activity in regard to the blood. However, the heart is not a completely accurate analogy for it is by no means the *center* of the organism, but is to be regarded as the complementary pole of the brain, only coming into existence by the growth of the brain mass and being formed out of material attracted by it. Although the heart was formed later and is the complementary opposite of the originally, sole-existing brain material, it nonetheless must be regarded as finally dominant and decisive, for life immediately ceases by a stab in the heart, whereas such cessation by no means always results from a stab or a shot wound in the brain.

The heart is formed by the condensation, expansion and accumulation of substance from an *arterial tube,* the first delicate arteries being formed by synthesis or "building-up" of biconcave blood discs into cylindrical arrangement. Therefore, the electricity manifested at the *periphery* of the cylinders, in consequence of the compact accumulated material, exercises its power of *attraction* only on the smaller interior mass. The firmer constituent parts are incorporated into the produced artery wall so that a hollow cylinder is formed in which the watery substance, separated from the firm material, remains behind in the form of serous blood fluid.

Returning to the *cells* or atomic masses, if we now examine them under a microscope, we find that their walls or membranes are by no means hermetically sealed; on the contrary, they are semipermeable, so that there exists a lively intercourse between their interior and the outer world (endosmosis and exosmosis). Owing to the opposite electrical charge of the accumulated atoms, they exercise power over a certain space, attracting other movable material within their reach, absorbing it or repelling the useless material, so that the atomic mass augments in bulk and density within its restricted space. According to the general law of *concentration* and *separation* demonstrated in my standard work, *'Life, Its Foundation and the Means of Its Preservation'*, the atomic mass becomes too dense, divides into two or more homogeneous parts or into layers of a different nature.

When one cell splits into two new cells the compressed atoms in the first cell are no longer able to find enough space for free molecular movement so that similar electric poles of two molecules may come together. Their mutual repulsion follows, extending the action over the entire content of the cell. Since the neutral matter accumulates more densely in the middle part, a partition-wall is formed, so that from one cell two similar cells result, which, with new poles attached to each other, become joined to the general mass. An extension or lengthening of the axis by the inser-

tion of a new link in the chain is thus rendered possible.

It may also happen that several molecules in the interior of a cell may give the impetus for re-grouping, so that inside the old cell four, six, eight, or even more independent groups separate from one another by neutral substance, symmetrically draw to themselves the remaining content of the cell and consume the material of the old cell wall. As in the former case we found an explanation of the axis extension, so in the latter we find to a cerain extent the explanation of growth in the periphery.

In both cases the impulse for *formation* and *renewal* appears as an *inborn law of life* extending even to the smallest atomic masses.

An atomic mass or cell which is *not* thus productive, perhaps being prevented by want of assimilable material, loses its vital force.

From this presentation it will be observed that a certain collection of mobile atomic groups have an original endowment of impulse to reproduce. *This universal law* applies even to stone dust, water and air from which plants are formed by the stimulating power of the electric sunlight.

In animal bodies, especially the human body, the cohesion of their atoms mainly depends on the electrically-acting brain mass and its ramifications and on the action of the heart with its tubular radiations and the quality of its fluid content. The human body lives only so long as the brain and heart maintain their electric tensional force. The building-up of our body proceeds, therefore, in accordance with the general law of growth and life, which is founded on impulse to *produce* and to *renew* (metabolism), i.e., the continuous building-up and assimilation of new protoplasm and the alternate destruction and rejection of waste incidental to the chemical funtions of life.

An organism producing nothing, non-rejuvenating, not renewing itself by re-integration and which has no animating influence on its surroundings, becomes torpid and dies.

Since the *impulse to produce* is characteristic of every single cell in our body, must not such motive power manifest itself in the *individual* as a whole, in the impulse to unfold his *personal initiative, his personal interests,* his creative spirit of invention and free enterprise, his vitality, his competitive efficiency to promote peace, health and prosperity for all mankind?

On the other hand, any limitation or restriction of the personal initiative of the individual or of all classes of men must inevitably prove a failure because it is an *incongruous anachronism*!

Life indeed means *being electric, being productive, acquiring, forming, building-up and calling into existence.*

Having thus shown that the functions of life are dependent on mutual electric intercourse with the external world, it follows that the life process of each single individual may be affected in the most various manner according to the measure that the electricity originally given us can be increased or diminished by external means. It will therefore be incumbent upon us to find out by what means the store of electricity within the human organism can be preserved and augmented and in what manner the store suffers the danger of being reduced and destroyed.

The machinery of our body must certainly be understood if we are anxious to preserve it in good condition. But it seems to me that such knowledge cannot be well attained by dividing the subject into four or five different anatomical sections for study in different academic terms instead of treating it as one *comprehensive unity* by viewing it from the *point of view of chemistry,* whose "magic wand" gives us a clearer vision than if some miraculous ointment had been applied to our eyes. By such a course alone it is possible to render the foundation of the healing art a common possession by diffusing a knowledge of the origin of diseases and of the methods of their prevention; giving everyone in the most important matters of life, independence and freedom from fear, prejudice and superstition, proceeding from ignorance and irrational reasoning; showing him what dangers and what

erroneous paths are to be shunned; and leading him in the way to participate in the highest degree of human felicity.

THE EGG

Lecithin, Plant and Animal Albumin, Heptadilactid, Tannin, Gallfly

The egg can be also regarded as typical of the basis of the mammalian organism and on account of its relative size is studied most easily. The white of the egg corresponds with the albumin of the blood, the yolk to that of the nervous system. The egg white is soluble in water because it contains no fat substance, however, the yolk, due to its amount of fat and the minute membranes which envelop the numerous fatty particles, is only soluble in water insofar as it is diffused by watery salt solutions which make up more than half its weight. The water content of the egg white amounts to as much as seven-eights of the total weight.

Both the white and the yolk contain potash, soda, calcium, magnesia and iron; but while in the *yolk* these earths are exclusively united with phosphoric acid and silica, in the *white* they are, besides this, combined with sulfuric acid, hydrochloric acid and carbon dioxide (or with sugar, a hydrocarbon carbonate).

The *yolk* contains neither chlorides nor sulfates. But since the yellow yolks are secreted in the hen's ovary from the blood albumin, we conclude from the separation of the phosphates out of a complex of carbonates, chlorides, sulfates and phosphates as shown in the yolk and white of the egg, that:

a) the phosphate compounds evidently stand in *opposing* relationship to the carbonates, chlorides and sulfates,

b) this very contrariness determines their correlation, since the opposing elements attract one another,

c) the *earthy* substances furnish evidence of their being *living forces* acting upon one another by their separating from one another and by their remaining in adverse position beyond the membrane enclosing the yolk,

d) the silica which is *common* to both compartments - the yolk and white of the egg - acts as an electrically-neutral mediating substance maintaining the state of electric tension between the different parts by *isolating* them. Without the presence of silica only incomplete relations could subsist between the white and the yolk. The earthy constituents together with the fatty and albuminous substances keep up a living tension between one another, and these I call *mineral tension elements* of our organism;

e) nearly one-half of the egg yolk consists of fat, hence of combustible substance; however, the egg white contains more than four-fifths of its weight in water. This means that the combustible yolk is surrounded by a watery casing protecting its membranes from the influence of the oxidizing air. To make its security doubly sure each individual fat particle in the yolk is enclosed by a protecting membrane, so that any combination of the yolk fat with the outside air can take place only in an extremely difficult manner through the membrane.

The further chemical characteristics of the yolk fat and the white are closely related.

The phosphoric yolk fat is mainly a compound of sugar with stearate of glycerin and ammonium phosphate. The chemical union of the two latter substances is so intimate that one could say as well that the compound is an ammonium stearate with glycerin phosphate and sugar. However, in calculating the chemical composition of the constituents of nerve fat (lecithin - egg yolk - = C_{42} H_{84} O_9 NP) it appears that 2 parts of tallow fat (stearate of glycerin) are combined with phosphate of ammonia, thus:

2 stearic acid (C_{18} H_{36} O_2) =	C_{36} H_{72} O_4
2 glycerin dehydrated (C_3 H_4 O)	C_6 H_8 O_2
	C_{42} H_{80} O_6
and if ammonium phosphate is present	H_4 O_3 NP
we obtain lecithin (egg yolk)	C_{42} H_{84} O_9 NP

Through its sugar content the yolk fat which corresponds to the brain fat (cerebrin), is related to the egg *white*. In fact, the yolk can be considered as a secretion product of the white, since the albumin of the animal organism (C_{144} H_{112} N_{18}) consists essentially of equal proportions of grape sugar (glucose) and gelatine sugar (glycine) plus earthy and sulfur compounds according to the following calculation:

18 grape sugar C_6 H_{12} O_6	C_{108} H_{216} O_{108}
18 gelatine sugar CHH COO NH_3	C_{36} H_{90} O_{36} N_{18}
3 hydrogen sulfide (SHH)	H_6 S_3
	C_{144} H_{312} O_{144} N_{18} S_3
less 100 water HHO	H_{200} O_{100}
Animal albumin (protein)	C_{144} H_{112} O_{44} N_{18} S_3

Animal albumin is nothing but aggregated vegetable albumin formed from partially-oxidized *sugar* united with ammonia. I succeeded in preparing plant albumin by warming together 1 part *tannin* with 3 parts grape *sugar* until chemical union took place. To this solution in water I added 4 parts ammonia with 1 part sodium sulfate and from this solution albumin could be precipitated.

Calculation shows that 1 part tannic acid C_{14} H_{10} O_9 and 3 parts grape sugar C_6 H_{12} O_6 with 2 equivalents ammonia N_2 H_6, after separating water due to chemical condensation correspond to 4 grape sugar and 4 gelatine sugar COO CHH NHHH, and this relationship is likewise found in animal albumin. The origin of vegetable albumin from partially-dehydrated and partially-oxidized *sugar* (tannin) with ammonia, determines its close relationship to fat which is also produced from oxidized sugar.

The connection between the egg albumin and the fat resulting from both having their origin in the same basic material is of the greatest importance in studying the *unity* of our physical substance and the conditions which govern its maintenance. Consequently, at this point I feel the neccessity to give the theoretic explanation of the gradual transformation of sugar into albumin and nerve fat.

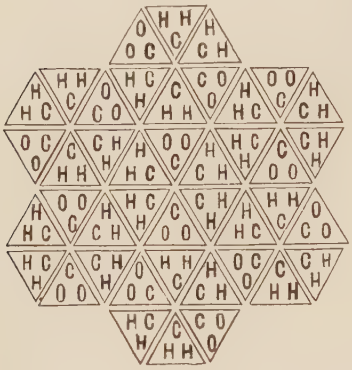
In the first place let me present the figure of the molecular structure of grape sugar C_6 H_{12} O_6. The sugar group upon losing its water points, as an equivalent for its chemical condensation with like particles or other substances, takes the shape of a hexagon.

Grape sugar C_6 H_{12} O_6

The chemical condensation with particles of the same kind takes place in such a manner that a group $C\overset{O}{O}$ from one residual sugar molecule attaches itself to a group $\overset{H}{H}C$ of the neighboring residual sugar molecule. This is determined by the chemical affinity of the electropositive hydrogen $\overset{H}{H}$ for the electronegative oxygen $\overset{O}{O}$ and the chemical condensation in this way becomes

understandable without the need of any cementing material.

These remarks explain how 6 residual sugar hexagons can group themselves around a seventh sugar hexagon, giving rise to the group drawn below consisting of 7 times $C_6 H_8 O_4$.



7 (C_6 H_8 O_4) Heptadilactid

Now when the 4 hydrocarbon CHH of the central sugar hexagon unite with 12 oxygen with the result that all 4 hydrocarbons oxidize into 4 carbon dioxide separating 4 water, then the central hexagon consists of 6 carbon dioxide. To balance this 12-fold oxidation, 12 chemical separations must take place.

This 12-fold splitting process occurs as follows. Toward the circumference of the whole group where the electric discharge naturally takes place, 9 water HHO are separated. Further, 3 splits take place along lines running from the geometric center symmetrically towards the periphery. The result is 3 molecules tannic acid 3 (C_{14} H_{10} O_9).

Roots, barks, leaves and fruit contain tannin in huge quantities. In astringent fruits, however, it can disappear by taking up water from the flowing sap under the influence of the sun's heat, thus reverting to carbon dioxide and sugar. The carbon dioxide then inflates the ripening fruits so they are capable of floating on water. My calculation of the molecular structure of tannin is confirmed by the fact that when heated it decomposes into quinone $C_6 H_4 O_2$ and pyrogallol $C_6 H_6 O_3$.

3 tannic acid = 3 (C_{14} H_{10} O_9)

The original group of 7 residual sugar molecules can, however, experience a vastly different fate when it has not yet reached the water-evaporating bark and leaves and is found dissolved in the rising cambial sap. In this case not *tannic* acid but *olein* is produced as follows: The presence of water and the exclusion of atmospheric air bring about a limited oxidation *within* the 7-fold sugar group, i.e., the oxygen loss from carbon dioxide by its conversion into oxalic acid or that 6 carbon dioxide with 18 water convert into sugar, separating 12 hydrogen peroxide. In such cases besides *tannin, lecithin* may be produced when ammonium phosphate is present. For this purpose 4 x 12 = 6 x 8 hydrogen peroxide are needed, which decompose into 6 x 8 water and 6 x 8 oxygen.

The addition of only 8 oxygen to the 4 central hydrocarbon of the 7-fold sugar group does not oxidize them into carbon dioxide but into formic acid $C\begin{matrix}HO\\HO\end{matrix}$. This is a condition of decisive importance, for in such a case where the oxidation of the *central* hexagon gives rise to formic acid, hydrogen peroxide is produced at each of the 6 edges, namely, 4 times of oxidation and twice by the combination of $C\begin{matrix}O\\O\end{matrix}$ with $\begin{matrix}H\\H\end{matrix}$ of a residual sugar at the periphery.

All that is now needed is a ray of the sun to penetrate the transparent membrane to effect a complete chemical separation as an equivalent for the sun power. It is clear that nothing can be separated at the edges but what is

present there, i.e., hydrogen peroxide.

Since the effect of the sun rays is by no means confined to the central hexagon, but like lightning passing along a lightning conductor strikes upon *all* the edges including those of the *peripheral* hexagons, it will be plain that for *every* one of the 7 x 6 edges an equivalent amount of force is required and must be paid for in the same coin first used, namely, in hydrogen peroxide. In the latter way *olein* originates, or under special conditions, the nerve fat *lecithin.*

Ordinary olein or plant stearoptene is formed according to the following calculation, provided that sufficient water is available to supply each of the 18 peripheral edges with 3 water:

7 (C_6 H_8 O_4)	=	C_{42} H_{56} O_{28}
18 x 3 (54) water	=	H_{108} O_{54}
8 oxygen	=	O_8
Total	=	C_{42} H_{164} O_{90}
less 42 hydrogen peroxide	=	H_{84} O_{84}
Remainder	=	C_{42} H_{80} O_6

In this formula we recognize without difficulty a double molecule of stearate of glycerin-anhydride: 2 (C_{18} H_{36} O_2 + C_3 H_4 O). Lecithin results from the latter by a union with ammonium phosphate as already explained.

Two points must still be considered. First, the hydrogen peroxide decomposes into water and oxygen so that at the moment of liberation from a compound (nascent state) the freshly-produced lecithin has immediate command of the formation of a new supply of oxygen serving to vivify it. Thus the theory of tannin and lecithin simultaneously includes the theory of *metamorphosis* or change of form into animal life, at least insofar as *insects* are concerned.

Since leaf green (chlorophyl) contains sugar and albumin side by side, a double reaction between calcium phosphate and ammoniacal albumin is all that is needed to produce ammonium phosphate. Then *no* insect sting is necessary, but the separating hydrogen peroxide is adequate to explain the production of living lecithin whenever an atom of calcium phosphate is carried along with the rising plant sap. Thus, doubtlessly, originated the first *gallfly larva.* Even today, phosphatic grain flour when oxidized in a moist state and it becomes rancid, produces various kinds of *mites.* And spontaneous generation of *leaf life* takes place in the sugar-containing leaf buds, the root tendrils produce *root louse (Phylloxera),* the sweet cambial sap metamorphoses into the larvae of the *bark scarabs* and the tannin-containing leaf sap transforms into *caterpillar maggots.*

I regard lecithin or nerve fat as the essential and indispensable material for the more intelligent animal life. The greater the *purity* of this material, the higher the intelligence of the animal even of the smallest size. The superior acuteness of the senses displayed by *bees, ants, flies,* etc., is due to this fact. The more the essential constituents from which lecithin is compounded are lacking and are substituted by lesser constituents, the more *clumsy, soul-less* and *stupid* the creatures become.

Pure lecithin, as already pointed out, consists of 7 sugar (C_6 H_{12} O_6), 1 ammonium phosphate, 8 oxygen, 42 water and *sunshine.*

If *sunshine* is absent, only *mites* emerge from moist flour.

If but little *ammonium phosphate* is present, *lice* are produced (plant lice, root lice, phylloxera, etc.).

If *air* is absent, we get marine *jellyfish.*

If *common salt* and *limestone* attach themselves to nerve albumin and air is lacking, there originate the clumsy *crustacea* and the *oysters* with poor sensitivity.

Even among the mammalia similar phenomena are observable. The massive bony ox while being harnessed to the plow receives many a blow from the farmer ere he learns his proper place. How different the intelligent dog with his comparatively light-built bone structure.

The noble steed, too - the heavier his bones the less mettle he shows. What a difference between the dray horse and the Percheron! And it is not less so in man! What a contrast between the spindle-legged delicate figure of Voltaire with that of the coarse-boned quarryman!

The nerve stearin fat (lecithin) in union with sugar is the foundation of innumerable different kinds of albumin, because sugar is capable of uniting in various combinations with earths and salts. For example, limestone can both alone and in combination with phosphoric acid, the halogen acids and hydrochloric acid, enter into chemical condensation with sugar. Similarly, so can potash, soda, magnesia, manganese and iron. This condition makes it clear that the manifold proportions of the chemical combinations of the different albumins form the basis for the aggregation of similar material, thus creating a variety of plant and animal forms as I have explained in detail elsewhere in this book.

A fixed relation between the chemical components must influence the further development, and the absence of a particular substance must modify the character of the resulting plant or animal organism. An example is the grapevine and the currant bush, both of which in their leaves, fruit and the ashes of the seeds, have a great degree of similarity. In currants, however, chlorine is wanting while it is present in grapes and this difference alone accounts for the form and quality of the plant.

As a logical consequence, we can observe how the shapes of both plants and animals alter when certain substances necessary for their peculiarities are wanting. How the shape of a consumptive changes! And how the leaves of trees, bushes and herbs degenerate into fungi! Such degenerations teach us that every particular shape requires an adequate supply of all those substances which determine its form.

Regarding the mammalia they are, so to speak, double creatures which owe their origin to different, though closely related kinds of albumin, namely, the *nerve albumin* (lecithin) and the *blood albumin* with a varying hemoglobin basis. Horse, sheep, ox, dog, cat, pig and hedgehog yield a specific form of crystallized hemoglobin, sometimes rhombic, then again the rhombus with truncated corners as hexagons and these hexagons in variously elongated forms.

The human hemoglobin crystallizes into *regular equilateral hexagons*.

Nerve albumin and blood albumin accompany each other in separate tubular vessels, running parallel to one another to the last thinnest tips. The arteries have the function of carrying the invigorating oxygen to the thin, oil-saturated nerve fibrils, while the chemical oxidation products of the nerve fat (carbon dioxide and water vapor) are carried away, back to the heart and lungs in parallel running tubes (veins).

Since our physical substance depends upon two different though related kinds of albumin which belong together, it is clear that a disturbance in the vital processes can take place in either of these systems and that either system can be affected by the other, i.e., the blood by the nervous system and the nerve substance by the dependent blood material. Unless we are informed about the *material* from which our body substance is built up, we are not in a position to study its *organic structure*, because chemical knowledge is the real foundation and essence for an insight into the processes of life.

THE BODILY STRUCTURE

Nerve Substance, Fluid Lymph and Hard Tissues

As in the egg when an electric impulse is produced by the nerve albumin and the blood albumin coming in contact with each other, the originally homogeneous substance rearranges itself into groups of opposite constitution. On one side, a chemical separation of water takes place causing a *condensation* or solidification, while the liberated water *liquifies* another portion, thereby originating ray-like strings, filaments or *fibrous* matter. On the other side, a fluid

lymph enriched with the *salts* thrown off by the fibrous matter is created. These salts give the lymph a higher electric tension, for *all* salts are electric excitants, and the greater the concentration of the salt solution, the more energetic is its function. But in addition to the lymph and fibrin that has been formed, a certain amount of unaltered albumin is left which can supply the necessary material for further development in both directions.

Fibrin, albumin and lymph, these three substances originating from albuminous matter, give us the key to the structural organization of our body, including the bones. It must be understood that bones are nothing but cartilaginous substance (i.e., modified fibrin) embedded in calcium phosphate. A demonstration of this is that upon dissolving the calcium out of a bone with diluted hydrochloric acid we obtain an elastic mass of cartilage preserving the original bone form. Let me now give examples to show that this threefold division of albumin into nerve substance, fluid lymph and hard tissues (bone, cartilage and fibrin) is of *universal* application to our *whole bodily structure.*

In the first place, our specific nerve center, the brain albumin, may be divided into the tough *fibrous* membrane (dura mater) and into the cobweb membrane (arachnoid) between which the serous *lymph* is enclosed, the whole being surrounded by the protective *bony* cranium. In the interior we find the *albuminous* cerebral matter as a productive base.

The cortical stratum of the brain albumin, the grey matter, must be regarded as radiating electricity like a conductor emitting sparks. It is continually being oxidized by the blood oxygen to form carbon dioxide, water, nitrogen and ammonium phosphate and is constantly renewed as it is used up similar to the mucous membrane of the stomach which dissolves into pepsin, etc. No organic substance can produce warmth or motion or do any other work without at the same time being chemically dissolved. It is the consequence of the law of the equivalence of force. The fat of the sweat glands and of the eyes, also the wax of the ears, are partial equivalents of the activity of our senses.

The *brain albumin extending outside the cranium,* in the form of various branches known as cerebral and spinal nerves, preserves the same general relationship of the brain albumin within the cranium. The first of these branches issueing from the brain is the *olfactory nerve* which divides its material into the pituitary membrane and into fibrous connective tissue and cartilage.

The *optic nerve* divides into the *horny* cornea, the *fibrous* sclerotic, the retina and the lymphatic vitreous humor on the one hand; and into the *lacrimal* glands formed of mucous tissue, the lymph-like *tears* and the eyelids of connective tissue, on the other. (When we weep, we weep away a portion of our optic nerve as an equivalent of our mental pain.) In the connective tissue of the eyelids we have the same division: the *tarsal* cartilages, the *ciliary* muscles, and the Meibomian glands with their fatty secretion - all confirming this standing rule.

With the *auditory nerve* the case is the same. I wish to draw attention to the *cartilaginous* pinna or auricle, the passage lined with mucous *ephithelium* and the fatty *lymph* known as wax, and within, the cavity of the tympanum lined with *mucous membrane* and the *fibrous* tympanum itself. The tympanic membrane shows connective tissue, mucous membrane and lymph, also the eustachian tubes have *bones, cartilage* ephithelium and mucous glands. The walls of the semicircular canals too are provided with bones and cartilage, their enlargements have connective tissue and a transparent serous membrane in the cavities of which is the so-called endo*lymph,* and in the pinna or auricle *serous* periost and peri*lymph.* Finally, the cochlea shows the same subdivision — the *fibrous* cortex, the accompanying *lymphatics* and the *osseous* laminae are all connecting parts of that portion of the brain mass which has been transformed into the auditory nerve.

Then I wish to point out the most important portion of the brain - the tenth

pair of nerves, the conversion of which into cartilage, connective tissue and ephithelium, bears strong testimony. Here we have the wonderful structure of muscle and cartilage known as the *larynx,* the partly cartilaginous, partly-membranous bronchi, and the lymph-conveying thymus gland which in adult is absorbed by the pleura and represents the third subdivision with the cartilage and fiber. It is suspended between the trachea and the sternum like the lacrimal glands between the eye and the eyelid. As pendant to the larynx, the trachea and the thymus gland, there again occurs in the lungs and stomach an elastic, expansive fibrous tissue together with a glandulous mucous membrane and lymph-containing membranes (pleura and peritoneum).

The root branches of the brain are not only converted into face, lungs and stomach, but are also transformed into the stem and branches known under the name of nerves of the spinal medulla and the medulla oblongata. It is sufficient to draw attention to the spinal column with its tendons and lymph canal, to the cartilages of the ribs with their tendinous connections, the lumbar nerves and the sacral plexuses and ligaments, the sciatic nerve with the bones and ligaments of the leg, and on the other hand, to the lymphatic region of the inguinal glands, the peculiar testicles and the extensive system of the lymph arteries of the arms and legs.

Everywhere we have gelatine-yielding tendinous fiber, the mucous membrane of the connective tissue and lymph.

This arrangement is most apparent in the *eye* where the optic nerve abundantly supplied with blood albumin spreads out spherically to form the *sclerotic coat* and the *retina,* enclosing the *vitreous humor* consisting almost entirely of lymph. The *horny* and resistant crystalline lens containing globulin-albumin and the gelatinous *cornea* complete the whole. The lymph of the vitreous humor contains such a small amount of gelatine that the delicate membrane formed therefrom, which constitutes a sort of protective network for the lymph, permits the lymph to escape even if very slightly injured. Since the retina upon which the light rays fall after passing through the cristalline lens, is woven of nerve substance which is liable to being consumed, the lymph of the vitreous humor seems to be the nutriment necessary to replace the consumed substance. The anatomical aspect likewise renders it probable that the lymph has the mission of nourishing the nerves; for the lymphatic system sends out innumerable branches to the nerves, so that the fatty lymph sap penetrates through the gelatinous membranes of the nerve trunks to *nourish* and renew the nerve substance. Although the *gelatine amount* of the lymph is very *slight,* it resembles the nerve substance itself which contains only one part gelatine sugar with 2 carbon, as against a mass of fat with 40 carbon generated from sugar. The delicate nature of the pia mater and the internal cerebral membranes or septa is in accordance with this small content of gelatine. The chemical relationship of the nerve substance to the oily lymph is evident. However, we know that only a small number of *blood* vessels, but a large proportion of *lymphatics* are connected with the nerve trunks.

From the aforesaid reasoning we can conclude that not only is the nerve substance recruited from the lymph as it is consumed, but also that, considering the contrast between the lymph and the fibrous substance plus the nutritional relationship between the lymph and the nerve marrow, that the soft oleaginous nerve substance was originally formed from *lymph material.*

In regard to the *fibrin* which is produced from the blood albumin, nothing further than a *blow* or impact is needed for its formation together with admission of oxygen. By beating air into fresh-let blood from a vein with a stick, the blood fibrin adheres to the stick in the form of satin-like threads. A similar thing takes place inside the organism; whereever it meets anything *solid,* there it remains and solidifies. Thus it attaches itself to the little crystals of lime phosphate which are carried along by the

all-dissolving salty blood and crystallize from the solution in it. Thus cartilage and bone are created on the one hand and, on the other, *fibrous,* tendinous tissue which penetrates the bone substance to a certain depth. It becomes either a firm connecting bridge between two so-called "bones" or it forms an arm of a lever to which the muscular bundles arising from the blood albumin are attached. In this manner, bone and tendon, and tendon and muscle, pass into one another by imperceptible degrees.

The bands or fasciae so hard to rend, which when wet shine like satin, are in reality "satin," namely, *silk* in its strongest, most compact and solid condition. From such genuine silk substance are formed the extraordinary, resistant "synovial sheaths" which seem to be forged onto the wrist bones but which are actually woven into the bony substance. It is underneath the arch formed by them that the silk tendons pass from the arms to the fingers.

The gelatinous silk of our tendons is formed by oxidation from the gelatinous blood albumin in quite a similar way to that in which ordinary silk is formed by the silkworm when the albumin passes out from the spinning glands into the oxidizing air, water and carbon dioxide being separated simultaneously.

The fact that the cartilage gelatine upon boiling in hydrochloric acid takes up water and yields *grape sugar,* renders it certain that it must have been formed from dehydrated sugar and ammonia. This fact also explains the formation of sugar in the liver from the blood plasma during *diabetes* when mental emotions or diminished respiration of oxygen cause a chemical splitting of the blood albumin, *lymph* and *fibrin* being formed at the same time.

The true nature of albumin as based on grape sugar and gelatine sugar, and of fibrin as mainly containing gelatine sugar is best studied in the *silk fiber.*

Raw silk contains besides two-thirds fibrous substance *(fibroin),* one-third gelatine *(sericin),* and these two substances manifest themselves as decomposition products of the same original material.

Sericin C_{15} H_{25} N_5 O_8 = 5 gelatine sugar, plus 1 grape sugar, plus 2 oxygen, minus 6 water and 1 carbon dioxide. The 2 oxygen are withdrawn from the 2 parts fibrion, for

Fibrion C_{15} H_{23} N_5 O_6 = 5 gelatine sugar plus 1 grape sugar, minus 7 water, 1 carbon dioxide and 1 oxygen.

Observations of this kind made upon the chemical decompositions of silk fiber spread a flood of light upon the origin of animal tissue and its alteration during disease. The silk of the silkworm contains at least $^6/_{10}\,^0/_0$ *ash* constituents. This earth content is conditioned by the chemical combining power of the gelatine sugar which forms the basis of the albumin. *Gelatine sugar* COO CHH NHHH with its glycolic acid COO CHH unites with *base* substances, and its ammonia NHHH combines with acids so that at the same time acids *and* bases, namely salts, unite chemically. This fact completely upsets the view that inorganic substances, e. g., common salt, Glauber's salt, calcium sulfate, are incapable of being assimilated by our organism, which is demonstrated by the salutary power of saline mineral waters. Further, such minerals as are themselves insoluble in water, for instance, phosphate of lime, become soluble by uniting with the gelatine sugar of the blood or lymph albumin. This is due to the hydrocarbon CHH contained in the gelatine sugar. What its effect is we can understand from the solubility of the *methylic s*ulfate of baryta as compared to the insolubility of the barium sulfate. From this we can understand very well the way in which lymph-containing sugar and gelatine sugar can transport in solution earths like lime phosphate to the parts of the organism where they are needed. Again, we now understand how this phosphate may be separated when either acids, e.g., lactic and oleic acids, combine with the gelatine sugar or when the hydrocarbon CHH which serves to keep it in solution, is oxidized by the blood oxygen into carbon dioxide COO and water HHO, which is carried off in the venous blood.

Now we know the nature of *fibrin,* namely, that it is characterized by a

greater amount of gelatine sugar (glycocol) and by chemical separation of water and that its origin from albumin is due to internal chemical motion. Also it is plain that the *dehydrated, condensed* and non-sensitive tendinous fiber which resists putrefaction, draws further material out of the albumin according to the extent to which it is subjected to tension. Thus we observe a notable development of fibrous tissue in the case of hardworking men and women and in draft animals and this takes place at the expense of the muscular tissue by the albumin splitting into its fluid and solid constituents. In this natural process we find also the explanation of the gradual hardening of the tissues in old age, it may even reach the condition of ossification and by the exhaustion of the movable materials finally causes death from old age.

The regularity of the process by which a pull or blow, a push or pressure causes a chemical *condensation* which requires as equivalent a *separation,* the result of which appears as chemically detached water and carbon dioxide, is not only seen in the palm of the hand, but also in striking beauty in the shining-like-satin texture of finest silk substance (the fascia), inside the connective tissue of the sole of the foot, with which the strong tendons of the thigh muscles are in close relation. These layers of silky connective tissue (fasciae) of the soles are about the most beautiful thing that the dissecting scalpel reveals to our admiring eye. Thus we can understand how the baby who is allowed to stretch his feet against the crib and wave his little arms puts tension on his sinewy fibers, develops them and so, as it were, spins silk, an advantage which is denied the child bound up in swaddling clothes.

Lymph. Having now made some acquaintance with the nature of fibrin, let me proceed with the consideration of the lymph.

Up to the end of the 19th century, the contents of the lymphatics were regarded to a large extent as consisting of waste or excretory material. Among others, Joseph Hyrtl says in his Treatise on the *Anatomy of Man* (Vienna, 1878): "The physiological function of the lymphatics is directed to the absorption of the liquid constituents of the blood after they have passed out of the capillaries and have served to nourish the tissues and to restore them to the blood circulation." However, this is the function of that portion of the capillaries with which the veins begin. Further, the removal of the waste products is provided for by the extensive intestinal tract and capacious bladder. Finally, the principal lymphatic running along the spinal column - the thoracic duct - enters the blood circulation quite close to the right auricle of the heart where the internal jugular vein and the subsclavian vein unite. It is evident that in the heart the nobler part of the blood must pulsate, so that waste products have no business to enter there.

In direct opposition to the view that the lymph consists of waste products, we must regard it as representing the most noble material with which the organism is supplied.

When albumin, originally containing equal parts of grape sugar and gelatine sugar, decomposes into fiber and lymph, a large amount of gelatine sugar combines with a small amount of grape sugar, causing a separation of water and carbon dioxide as we saw in the case of silk fiber. The lymph contrasts to the fiber by its small content of gelatine sugar which might thicken into fiber; however, the lymph contains albumin, sugar gelatine and the earthy and salt parts which were not used by the fiber. Its richness in sugar enables the lymph which flows in its own separate channels out of the reach of oxygen, to supply the material necessary for the formation of fat by separating carbon dioxide from the sugar. In all probability the carbon dioxide thus liberated assists the forward movement of the lymph which runs in fine channels. Since the lymph has to supply the whole organism, its upward movement is facilitated by a series of relay stations or canal locks — the lymph nodes — from which it is sent on further. Through its contents of ammoniacal albumin, phosphatic earths and salts, sugar and fat, the lymph holds

all the nutritive elements both for the blood and the nerves needed to supply new material for that consumed. Now that we know the vital worth of the lymph it is hoped that those surgeons who have hitherto been so ready to remove swollen lymphatics with the knife, will in future think twice before they act.

As said before, the nervous system affords the best clue to the understanding of the anatomy of the whole body, so we find that the brain substance, which is protected from immediate contact from without by membranes of different thickness and by a bony shell of gelatine and calcium phosphate, the cranium, consists mainly of a chemical compound of sugar with fat and ammonium phosphate. The brain is divided by a number of delicate membranes into compartments, each permitting independent growth like the shoots which sprout "eyes" of a potato. The resulting extensions of various nerves protected from immediate contact by membranes and by osseous walls, issue symmetrically from the two halves of the brain. In one half they go forward, creating the face; in the other, they branch off behind helping to form the lungs and the stomach in such a manner that the branches of the nerve strands, from which the lungs and stomach result, continue on and so reach the liver, spleen, pancreas and kidneys.

To give these organs support, the globular brain is extended into the spinal cord protected by the vertebrae. The spinal nerve trunk, too, gives off various branches provided with a gelatinous sheath (perineurium) among which we may enumerate the cervical, brachial, intercostal, lumbar and sciatic nerves. Thus we may recognize the following pairs of extensions or runners from the brain:

1. Olfactory
2. Optic
3. Oculomotor
4. Trochlear
5. Trigeminal
6. Abducens
7. Facial
8. Auditory
9. Glossopharyngeal
10. Vagus
11. Accessory
12. Hypoglossal

The three latter (10, 11, 12), grouped in each of their halves closely together, surround the stem-like prolongation of the brain known as the spinal cord, which in turn is surrounded and protected by the hard vertebrae bones from which issue 32 pairs of nerves - 8 for the cervical plexus, 12 for the thoracic and 12 for the abdomen and thighs.

With regard to the *bony parts* they are chemically a *metamorphosed form* of the brain substance. The bone contain fat and ammoniacal gelatine, just as the nerve substance does; the only difference is that the nerve contains ammonium phosphate and the bone calcium phosphate as the chemically connective material. Indeed, when calcium (lime) is exchanged for ammonia in the bone gelatine, we find the bone converted into living nerve material, which begins to move, as is shown by the maggots which originate in ham bones. Thus the bones are in reality nothing but masked nerve substance.

No wonder that we find a second nervous system arising from the bony spinal column. For there is suspended, attached by different fibers at various places, the so-called *"sympathetic system"* the branches of which in conjunction with those from the cranial and spinal nerves assist in forming the intestines. This intestinal nervous system is a network of plexuses unlike the straight-lined brain prolongations. Due to its passage through the petrified form of nerve substance (bone) it is, so to speak, "polarized," i. e., it has lost the power of independent sensation. However, its fine terminations regain the power of sensation through being blended with the last most delicate fibers from the cranial nerve prolongations to form plexuses. The cementing material between the two kinds of nerve fibers is on the one hand muscular tissue and on the other connective tissue. In this way, the electric current dwelling in the nerve fibers is forced to form a closed circuit and is not felt by the individual under ordinary circumstances. It only makes itself perceptible when an interruption takes place in the regular circulation of the contents of the veins and arteries running parallel to the nerve fibers. The nerve substance and the blood material

always complement one another and the fact that the blood vessels are penetrated by spirally-arranged fibers of the sympathetic nerve system, we can regard them as counterparts of the cerebrospinal branches.

Since every nerve fiber is accompanied by blood vessels which are frequently enclosed in a common sheath, the *unity* of the structural plan of the human body becomes strikingly apparent.

Our Vital Force. The nerve oil chemically unites with oxygen throwing off minute portions of water and carbon dioxide. This process of combustion is equivalent to the operation of a vast number of small portions of energy, which in their perpetual succession, make up the total or capital of our *vital force*. If the combustion be interrupted, as, for instance, by drowning or strangulation, the respiration stops and the vital force disappears. It is the central point from which everything may be reached and understood like the various threads of a spider's web from its central point.

Respiration occurs in the lungs by means of its hair-like blood vessels which present an anatomically inextricable "ant hill," the functions of which take place with just as regular a plan as in the case of an actual ant hill. The lung capillaries join together to form larger vessels which at length form a large receptacle - the heart.

The function of the heart, set in motion by the electric force of its nerves, can be compared to the water chamber of a steam fire engine whose contents are forced forward through tubes. In this way the lung or arterial blood reaches the remotest parts of the organism and there ignites the melting stearin fat of the nerve tips by means of the oxygen carried from the lungs. This is the main source of power in air-breathing animals, whereas in aquatic animals it is the separation of nerve substance in the form of water and partly of carbon dioxide which forms the source of power. This is analogous to the violent convulsion of epileptics and of those who are hanged, which are likewise due to insufficiency of oxygen and are based on the separation of nerve substance, just as the liberation of mucus is followed by convulsive coughing as an abnormal motion.

Since our vital force can only become active through the *combustion* of nerve oil, it is obvious that fresh nerve oil must be periodically procured in order that the lamp of life may continue to burn.

Thus, a complete similarity exists between the oil consumption in an ordinary lamp wick and the burning of nerve oil in the wick-like ramifications of the nerve fibers, the only difference being that the combustion of nerve oil does not occur in a large, free space, but on the contrary in a confined, narrow space which makes it more difficult for the air access to pass through the capillary pores to reach the nerve terminations. However, we have the advantage that, with the vital flame being spread equally over millions of different points in our body, no general conflagration can occur and the combustion has the effect of producing a mild warmth of which the organism receives nearly the full benefit since not much is lost by radiation.

While the channels for carrying away the combustion products from the nerve ends are just as narrow as those for the oxygen intake, this very circumstance enables a complete and full use of the warmth resulting from the heated combustion products - water and carbon dioxide - which, carried in the venous blood, are set free in the lungs, where the "ant hill" of capillaries meanwhile has its hands full of work.

Since the combustion products of the nerve oil carry with them the burnt products of the partitions, their ash constituents in the form of salts must be considered. This also, in fact, takes place thanks to the action of the "ant hill" lung capillaries with such order that the solid salt particles are carried along tubes with strongly-resisting walls to still-more resisting glands - the *kidneys* — by means of branches from the abdominal aorta where, dissolved in the blood serum, they are excreted in the form of urine.

This means of distributing the com-

bustion products - the gaseous ones upward, the solid ones downward - assures the continuous and abundant burning of the nerve oil provided that the burnt products, water vapor and carbon dioxide, are *breathed out thoroughly* permitting the entry of fresh air. Otherwise a diminution of vital force takes place giving rise to disease of the organs and often a disorderly disintegration of nerve substance.

Considering the above points of anatomy, we find that the following vessels or systems of tubes must be present:

1) A compartment for the *nerve stearin*. This is the cranium and the spinal column with their bony and membranous prolongations.

2) A compartment for the blood-carrying *oxygen*. This is the left auricle and and ventricle of the heart with the aorta and the arterial system.

3) A compartment for the *carbon dioxide*-containing *watery blood*. This is the right auricle and ventricle of the heart, the vena cava and the venous system generally.

4) A system of tubes for supplying fresh nerve oil. This is the *lymphatic system* which enlarges itself eventually into intestines and stomach; into the stomach fresh material is introduced through the esophagus leading to the stomach from the mouth funnel.

5) A system of canals for alternately introducing fresh air for combustion and carrying-off the burnt gases. These are the lungs with the bronchial tubes, in other words, the *respiratory system*.

6) A system through which the heavy ashes and used-up salts are disposed of. This is the large intestine on the one hand and on the other the kidneys, ureters, bladder and urethra *(excretory system)*.

The walls of the different canal systems running at times parallel to one another, at times interwoven in their ramifications, make up a harmonious whole construction in the form of a flexible mechanism. And since the different systems run one into the other and grow together, any derangement of one must by necessity make itself felt by the whole. Hence, it is meaningless to say that a man suffers from liver trouble for instance, for it is certain that a number of other places are involved, because we have before us an interdependent piece of clockwork.

Now we come to the conclusion that the mechanism of our organism is essentially composed of burnable nerve oil and is maintained by the *burning of this nerve oil*. Therefore, the main thing is to prevent interruptions in this process or to remove them when they occur, so that the lamp of life may continue to burn. The conditions under which and how this can be done deserves a careful study of the next section.

PHYSIOLOGY, THE ACTION OF THE BODY IN HEALTH

All the various functions of the body without exception have the purpose to render possible our *mental activity*. The circulation of the blood, respiration, digestion, excretion — all tend to enable the nervous system to function and continue in the exercises of its functions.

Mental activity in reality merely consists in assembling together bodily material. By means of thought and deliberation we impart motion to the materials around us, arrange them in groups and forms and derive pleasure from the manifold shapes resulting therefrom. It is in this that our divine inheritance consists: "Know ye not of what manner of spirit ye are?"

"Consider it well. The inference lies close. You yourselves are God become Man. Recognize Him in yourselves and He is there." (Sallet)

To build! To create! To gather together! To rule the things around us! That is the purpose for which we exist. How could it be otherwise? Everything that exists is from and through God, is God Himself, Who permeates all matter. Thus *we ourselves* are a part of God and we cannot be happy in our existence except by striving to resemble God in his

creative activity. A natural compelling impulse rules in this respect. As God, without ceasing, newly forms His creation by transfoming it, as He directs and rules it, so consciously or unconsciously we do the same. To this purpose all our body regions are permeated by *nerve* substance which represents the *active spiritual principle.*

How remote from recognizing this fact are the hitherto existing works on physiology which supply a profusion of separate facts without acknowledging the principle which binds them into a unit. The consumption of tissue, blood circulation, pulsation, respiration, muscular movements and sensations are presented to us in rigid dissection.

Philosophers and sages, men of might
They call the searchers, who to learn truth's way,
Break down the stately organ fair and bright,
While Music pines and dies away.

If they but know enough to call by name
Each nerve and artery and every tissue
They think they've merited earth's highest fame
Forgetting that 'tis Life, which is the issue.

(Sallet)

I repeat, the point of our body functions is founded on a constant new-forming and carrying away of the former material and at the same time renewing fresh, similar substance of more powerful and resisting structure, enabling *mental activity* to continue and this action consists properly of *motion* and *change.* We observe the childish views and affections altering as the child's physical substance gives way to a more mature form and to other and firmer substance. What is novel and hitherto unknown, coming in contact with the mind, brings it fresh food which is assimilated, causing increase and enlargement of the brain substance. Only when it is no longer affected by what is new in what we in contrast term life, does death begin.

By far the greater portion of our life is taken up by the activity of *thought,* whereas *eating* and *drinking,* for instance, demand only a relatively short time. The mind is in truth far more desirous of food than the body. When the impulse for mental exertion is not satisfied from without by changing impressions, then the mind rests on itself, i. e., turns inward upon itself and becomes inventively productive. Minds of this nature gifted with the divine power of *imagination* or fancy do not as a rule stand high in the estimation of the more dense-witted portions of mankind. Generally they go by the contemptuous name of "dreamers" or fantasts and it is only when their mortal body has crossed the River Styx that men strive to retain and preserve them for posterity in monuments of stone and bronze.

Nevertheless, men endowed with imagination and vision influence a good portion of their contemporaries like fermenting leaven. When they speak, others cease to discuss the trivial concerns of daily life. That this is so is due to the presence of a *divine spark* which slumbers in every human breast and which needs only a breath to fan it into flame. It is good for us to come within the magic aura of spirits like these — we awaken then from weariness and slumber.

"God lives in you; in movement, in brightness and in sound you may behold the eternal forward motion of the spirit. But even if you lie in the darkest dungeon's night, even in the dungeon you might build up the kingdom of God. Call Him and He will come into the depths of your heart and make divine both will and thought and sight. Why do you point gloomily beyond the grave? Not complaint, but sturdy labor should be your hope. Thou art in God, Thou wast in Him from the beginning and here as there heaven stands open to thee." (Sallet)

The mystery of sensation consists in the fact that a particular excitation is transmitted to us and causes the mind to move in a corresponding manner. The sensation of sympathy or of pity is in this respect the mother of many varieties of emotions, and sympathy proves kinship of mind. It is plain that the chemical composition of the material which became active in the formation of the original human seed is of the greatest importance: for example,the shark cannot be blamed for his unenviable peculiarities, nor the philosopher praised for what he produced.

As sympathy refuses to be roused except by what is alike or homogenous, it follows that we are justified in avoiding what is contradictory and opposed to our nature, and even to subdue and to tame and rule. To attain this power of command the principal requirement is mental superiority - mental force. What gives rise to this *mental energy?*

There is no doubt that every kind of movement occuring in the world can be traced back to electricity, and even our vital movements draw upon this common source. A few examples may make this matter clearer: A brook flows down the valley and turns a mill. That is electricity! - How so? By turning our mental vision toward the sun, we find the chemical elements in gaseous form engaged in a gigantic electrical contest. The result is blinding light and flaming heat. The scorching rays from the sun heat the equatorial atmosphere of our earth, where the watery wastes of the ocean are constantly being spun round before the fiery orb of the sun. The rarefied air, like a partial vacuum, sucks up continuously the water of the ocean and carries it in the form of vapor towards the north and south poles, leaving in its course lavish gifts on all mountain summits and tree tops. The aqueous vapor condenses into dew and rain collects to form rills and brooks and flow as rivers back to the sea. But has it not been elevated by the electric force of the sun? Does it not then follow that the active force which drives the mill is of electrical origin? Is it not the electrical sun the mother of heat and wind and of the growth of plants and animals and of all terrestrial phenomena?

Let me give another instance: Wine ferments in the cool cellar and gives off bubbles of carbon dioxide. The mash ferments in the mash tub and, owing to the fermentation, becomes warm. In both cases electricity is involved, for the motion of the carbon dioxide and the heating of the mash are only an altered form of it and this is in accordance with rigid logic when once the correlation of physical forces has been recognized. (See *The Winy Fermentation of Grape Sugar* for detailed explanation.)

The fermentation of wine teaches us this highly important fact: The removal of carbon dioxide and electricity from sugar gives rise to its chemical *decomposition,* and when this decomposition begins, that amount of electricity which is not employed in building up a new organism assumes an altered form and manifest itself as *heat.* Thus the decomposition of the sugar liberates forces which compel us to regard the undecomposed sugar as a storehouse of *tensional energy.* The strange point about this matter is that chemists and physiologists have hitherto neglected to build further on this fundamental fact.

In the animal kingdom, too, there is no other source of energy than the sugar which the sun's rays have built up in plants. Therefore, it is conceivable that a rapid decomposition or loss of the substances produced from sugar may cause fever, sickness and death. The occurrence of fever heat is comparable to the production of warmth in the mash tub due to the fermentation of sugar, and this comparison is fully shown by the fact that in fever a much greater amount of urea is found in the secretions, which points plainly to an intense decomposition of albumin.

But in what way does the vital force display itself under normal conditions?

All forms of motion on earth are ultimately due to solar electricity, the effect

of which is visible in the water vapor which it raises, as in the falling drops of rain, and which causes the tree to grow and unites the albumin indispensable to animal creation. Consequently, it is plain that the decomposition of albumin must again set free the solar force, in a way similar to that in which falling water turns the mill wheel. The total effective force produced by the water in its descent corresponds to the law of correlation of physical forces, to the amount of solar heat which was required to raise the water in the form of vapor.

The same thing is true of chemical compounds which in being dissolved liberate physical force. For instance, the carbon dioxide condensed in carbonate of lime, when set free by replacement of hydrochloric acid, is, when freed from its tension, capable of raising the gas container. It can, however, as in the case of the burning of lime, be driven out by heat as well. And what may be done by heat may also be done by electricity. These forms of energy pass so imperceptibly into one another that it is impossible to draw a hard and fast line between them.

Continuing this line of reasoning, we find that the obscurity in which the nervous system of fishes and other aquatic animals has hitherto been involved, is dissipated. For we may observe how sardines, herrings, etc., water mammals, the seal and the whale, give proof of a much more intense and enduring power of motion under water than could be explained as the mechanical equivalent of the small oxygen content of water. In aquariums it may be seen what an extraordinary length of time the fish remain under water without rising to the surface in search of air. Nevertheless, bubbles of carbon dioxide rise from their mouths and gills. Further, we may observe that the numerous aquatic animals collect considerable accretions of fat which originate chemically through the splitting off, of carbon dioxide and water from sugar. So we are obliged to acknowledge that the accumulations of substance which aquatic animals, the oyster included, display, owe their origin to the chemical separation of carbon dioxide and water from the nutriment which they absorb.

The perspective which follows from this observation is not limited. We recognize that out of the constant transformation process in the sea, to which the remainder of the animal substances are subjected to, whereby amongst others fiber remainders by chemical absorption of water again become soluble, untold numbers of creatures can manage to live. The oyster, for example, has nothing else to do but to swallow in order to assimilate albumin.

Such an easy way of living is not capable of developing the life of the soul. But it gives us a key to the knowledge of how primeval man, perhaps not as helpless as today, could find the soluble albumin substances in the salt water necessary for his growth, as he still does today. Stuck to the rocks, originally with a weak, mucous membrane similar to the oyster, gradually its fibrous ligaments grew stronger as the accumulation of food substances increased in weight.

How often in numerous places in the sea it happened that the creature which grew out of a group of 18 grape sugars and 18 gelatine sugars, together with sulfur, lime and iron, potash and soda salts, grew into a human child. In the lukewarm sea water, through sea storms, it was thrown to the shore and often found its destruction, falling prey to the bears and wolves. But now and then came a dog with suck, attracted by its cries, which carried the human child back to its cave and raised it together with her young. Even today the nurse finds it difficult to separate from her foster child, follows him everywhere, protects him from the wolves and receives from the usurper of the earth kicks instead of thanks.

Similar to the movements of aquatic animals, the exertions of human force are necessarily dependent on a constant splitting of tissue with a corresponding reintegration so that a regular disintegration of the material at our command, namely, *albumin,* seems indispensably

necessary to the manifestation of our vital force.

The orderly way in which this chemical disintegration takes place is by *respiration,* by means of which oxygen gas is chemically combined, while other gases are set free proportionately as the chemical combustion proceeds. From this point of view it may be seen that we possess in the albumin of the blood, which is composed of adjacent groups of 18 grape sugars and 18 gelatine sugars together with earthy substances, a rich store of combustible material, consequently of electric tension material. Healthy blood albumin represents a reserve capital.

What enjoyment we can find if we proceed wisely - if we act with *economy,* not allowing our treasure to stay idle behind bars or squandering it like a foolish spendthrift. If we imagine our wealth to be inexhaustible, thinking that we can make ourselves poison-proof by the use of poison, we slowly but surely commit *suicide*. All men wish to enjoy a long and happy life, yet they fail to understand that protein overeating, excessive use of alcohol, nicotine and the many poisonous tablets, shorten and even destroy it.

The amount of nervous activity is in proportion to the quantity of combustion products, which form the driving force. In this respect our organism resembles the steam engine. The same holds true in the brain substance, the oily constituents of which also are subject to combustion. And the offshoots of the brain substance are similar, especially the vagus nerve which sends out branches to the lungs, stomach, liver, spleen, pancreas and kidneys, so that these organs are in direct connection with the functions of the brain. This is proved by enlargement of the liver after serious vexation, lack of appetite due to troubles and grief, micturition from fright, anguish and terror, enlargement of the spleen from breathing rarified hot air, oxygen deficiency in the tropics, or insufficient absorption of oxygen due to anemia and chlorosis. On the other hand, imperfect respiration owing to sedentary employment causes palpitation of the heart, depression, lack of energy and self-reliance, nervousness, melancholy and hypochondria, as the result of an inadequate supply of blood to the liver, stomach, spleen and other abdominal organs.

Ability to work and pleasure in activity are mainly due to the abundant breathing of pure air rich in oxygen. Then the appetite is good and the digestion satisfactory, owing to the secretion of the normal digestion secretions (bile, pancreatic juice, gastric juice, enteric juice). Happiness, communicativeness, pleasure in art and music, desire for activity, consideration for our fellow men are the result. Cool air is our most precious source of vitality.

On the contrary, inadequate respiration is the cause of many of the ills, both bodily and mental, to which the flesh is heir.

REST AND SLEEP

Whenever respiration does not take place abundantly, the ash products (carbon dioxide and water) collect in the blood. As all the ash substances, when strewn over burning fuel, interfere with further combustion, so the presence of carbon dioxide interferes with the abundant oxidation of nerve fat. The feeling of "fatigue" can be attributed to this fact.

Regular nightly sleep is based upon the fact that from the time when the optic nerve is no longer excited by the daylight and the auditory nerve by the daily noise, the circulation becomes directed more towards the abdomen, in order to assist the restorative functions of the lymphatics which supply fresh nerve and blood material. Also, the nerves, which pass to the lymphatic glands and support their functions, are incapable of acting without having oxygenated blood at their command.

The brain gives up a part of the blood,

that would otherwise flow to it, to the domain of the vagus nerve, under the influence of which the lungs, stomach, spleen, liver and kidney free the blood from the carbon dioxide which has collected in it. At the same time it produces fresh lymph and receives in exchange this very same fresh lymph that replaces the used-up material and renews its capacity for action.

The period required for the fluids in the lymphatics to supply blood and nerves with the material needed for replacing the waste is estimated at six to eight hours. It is for this length of time, that *our sleep should last,* and after it is over, the dreamily flickering vital flame shines again, to burn again for sixteen to eighteen hours, while thought and clear consciousness re-enter upon their command.

An arrangement whereby the lymphatics suck up the chyle from the alimentary canal merely through the force of capillarity (in this respect they differ from the arterial and venous systems which are acted upon by the pressure of the heart), requires considerable time - six to eight hours - to collect and fill themselves with the chyle which is conducted from the intestines to the thoracic duct. By a vast number of fine tubes they unite with one another, as mountain rivulets form a brook and brooks form a river. This composition makes it plain that the length of sleep cannot be shortened arbitrarily without causing the blood material and nerve substance to become exhausted, resulting in a condition of weakness.

The thoracic duct, into which the fine lymphatics coming from the intestines pour their milk-like contents, begins at the base of the spinal column and passes up along it through the thoracic cavity to the level of the collarbone where it empties at the juncture of subclavian and left internal jugular veins and periodically mixes its contents with the blood.

The anatomical conditions thus place a certain amount of difficulty in the way of filling the thoracic duct with lymph when the body is in an *upright position,* as the saline lymph, which is heavier than water, sinks downward like all liquids in accordance with the law of gravity. Fortunately, however, the great lymphatic which passes up along the spinal column is not straight but zigzag, which slightly assists the upward movement of the lymph. Still, the duct would not fill if we were not in the habit of reclining at night. The thoracic duct then assumes a nearly horizontal position and it may easily fill with lymph as then it does not need to overcome the pressure of a high hydrostatic column.

Therefore, sleep is not merely a question of resting the nerves which during waking hours govern the play of the muscles. By this means alone the organism could not succeed in attaining fresh power. It is important that during sleep the body should assume a horizontal position for when it is upright the lymphatic canal neither fills up nor pours its contents into the blood, so upon awaking there is little feeling of restoration. This furnishes an explanation, at least in part, why continual night-life, which in spite of over-fatigue sends the blood to the brain instead of directing it at the right time to the abdomen, gives rise to indigestion, weakness and depression of spirits. "One hours's sleep before midnight is worth two hours after midnight," is an old, popular saying.

THE EMOTIONS

The proper nature of the changes in our emotions without doubt can be traced back to electric currents. Our nerve fat consists of carbon and hydrogen combined with phosphates. Hydrogen is chemically a metal; combined with carbon it forms a galvanic element which may be excited by salt. It therefore follows that our spinal column with its "brain pole" and its terminal branches embedded in muscular or connective tissues, forms a most perfect gal-

vanic battery. This is true in a double sense. This battery produces independent electricity which can act as an irritant upon and felt by, and other bodies. On the other hand, it is also sensitive to foreign electricity, i. e., electricity coming from without, thus playing the part of an electroscope.

An electric current passing along a wire will induce a current in another wire running parallel to it. So the electric current which traverses our nerves acts upon other persons and exercises a determining effect upon them, insofar as their own supply of electricity is inadequate to enable them to act independently.

Consequently, emotions are like infection, so to speak. History from the earliest times down to the present day shows this. Trouble and worry, also insufficient oxygen in the blood. give rise to indigestion, emaciation and disease. Fear, terror and other forms of mental excitement contribute to diabetes.

Extreme vexation causes swelling of the liver and interruptions of the blood circulation in that organ and also in the spleen. Defective circulation of the blood in the liver and the spleen cause ill humor, fretfulness and melancholy (black bile). The bile is secreted by the liver, and the spleen is always affected along with the liver. The acid venous blood from the spleen passes along the portal vein to the liver - the structure of which resembles an electric battery with porous cells - and puts it in the condition necessary for carrying on the process of electrolysis. Its most important product is the bile, a substance indispensable for digestion and nutrition. The spleen, liver and stomach are all supplied with the same blood from the three branches of the coeliac artery. Therefore, as the spleen participates in the unhealthy condition of the liver, it is quite right to say that a man suffers from "spleen." The real seat of the depression of the spirits is in the liver, the spleen, the stomach, the pancreas, the duodenum, and even in the kidneys. These organs are connected with the brain by different branches of the vagus nerve, as by telegraph wires. It follows that hunger makes people cross, while it is generally said that "Well to dine makes a man benign."

According to the electrical nature of our nerve substance it attracts, holds fast and assimilates other material which falls within its sphere of action and regards it as its own. Not only the things which come into immediate contact with our bodies, but also the objects which form a part of our daily life, cause an unpleasant sense of loss when they are removed from us. How much more likely, then, is the loss of family members or intimate friends through death to create emotional wounds that in their effects are equivalent to corporal injuries. How often does sorrow for a beloved child bring a mother to the grave. How often does a husband or wife follow his mate in death since the one cannot find happiness without the other.

What we love with devotion and lovingly draw to us becomes a part of ourselves. It is not an exaggeration to say that when we lose a dear one it is as if the heart were torn from the body. And yet there is a remedy for even this affliction — work and activity directed to the good of others and designed to bring them happiness.

Fear of disease is caused by ignorance of the chemical functions of life. The more you know about the chemical processes, the better off you are. The following example of Dr. Robert Koch's cult of treatment of consumption (Nov. 1890) shows how fear of disease deprives men of sober deliberation. Dr. Koch admits to being largely indebted to his chemical assistants, he himself not being sufficiently acquainted with organic chemistry. Though it might be possible by means of injecting cyanide of gold (as with the iodine of mercury against syphillis), to interrupt the peculiar kind of disintegration of tissue into leucine and tyrosine, it is nevertheless impossible to cure consumption itself in this way. Experience shows that a diet strengthening and renewing the blood is the absolute essential. This latter fact is also admitted by Dr. Koch, for both he and his followers say: "Good diet and treatment are of course also re-

quired." But this important and most essential point gained but little attention from the bacteria disciples who expected more effect from Koch's nostrum than he himself did.

And so sanguine were they that they took notice of Koch's own statement that "Lupus may, indeed, be cured, but further experience is required in regard to consumption and it must be treated from the beginning if the remedy is to be of any use. I did not desire to make the matter known as yet, but you are pushing me so much that I don't know where I stand." "Let him have a million marks at once, this benefactor of mankind," exclaimed foolish people who were misled by Koch's colleagues although not a single person has been or can be healed by this remedy which works miracles(!) without a corresponding generous diet. But what could the unfortunate Koch do?

Privy Councillor Professor Frantzel expressed himself quite plainly, to the effect that the case is the same as with the vaccination against smallpox. The effect will not last forever, the process must be diligently repeated. His very words are: "The bacteria decrease in size and vitality after the vaccination, but they still remain capable of life, and we cannot escape the fear that if the treatment is stopped too early, even when the patient is apparently free from bacteria, fresh, fully-developed bacteria may appear after the lapse of a few weeks."

This is an excellent way of keeping a back door open for escape! If any of the persons subjected to the vaccination should have a relapse after a few weeks and finally die, we are innocently told, "The man did not keep up the treatment long enough or the vaccination was not made with sufficient care or was not of the proper type."

There are only a few who manage to emancipate themselves from the effects of the electric current which, produced by the mass of men, overwhelms and subdues the individual. The knowledge of how little in reality is needed for subsistence, health and happiness, and that modest requirements bring freedom and absence from servitude, is often only learned step by step and late in life. Everything requires time to ripen.

As an assistance in overcoming all misfortune and anguish of every kind, let us remember the adage, "This, too, shall pass away" or "Your best capital is knowledge and vitality."

NUTRITION FOR BUOYANT HEALTH
or
WE ARE WHAT WE EAT

As the length of the small intestine varies greatly (from 14 to 26 feet in adults), the digestive capacity consequently is subject to proportionate modifications. Experience shows that not every form of food agrees with everybody. It depends upon the chemical composition of the different digestive juices secreted by the liver, stomach, pancreas and intestines. The digestion of fatty substances requires the bile secreted by the liver to be of adequate alkalinity (requiring potash and soda); for the digestion of vegetables like peas and beans, whose ash is rich in magnesia, the action of strongly acid gastric juice or the addition of vinegar is required to prevent the trouble caused by the formation of insoluble double phosphate of ammonia and magnesia within the intestinal canal. On this account, people whose intestinal secretions are defective are advised to avoid peas and beans as well as acid and fatty foods.

On the other hand, foods rich in potash are usually easily digestible by everyone, for example, potatoes and kohlrabi, the ashes of which contain more than half their weight in potash. Meat is still more easily digested, its ash being composed of nearly three-quarters phos-

phates of potash and soda. In pork, potash, soda and phosphoric acid make up 85 percent of the ash, the remainder being calcium and magnesia. This is what makes the consumption of raw ham so benefical to anemic people provided that the diet is supplemented by whole wheat bread, potatoes and green leafy salads.

The old calory theory that for proper nourishment certain amounts of protein (albumin), fat and carbohydrates (sugar and starch) are essential, depends on confused views of chemistry. It is certainly true that we need fat to renew the nerve fat which has been consumed, but this can take place without the consumption of fat, for fat can be produced from sugar and starch as well as from albumin. Does not the cow produce more than 100 pounds of fat while feeding not upon fat but upon starch-containing grasses? The amount of fat put on by beer drinkers also shows us that malt sugar is a source of fat. Contrary to this, certain beasts of prey starve rather than take food containing sugar or starch. And there are also people who cannot abide anything sweet. Thus, no universal rule can be established in regard to nutriment; it is much better for everyone to follow his natural inclination (appetite) and this tells us that we must adopt a certain *amount of variety*.

In the same way as the *auditory* nerve and the *optic* nerve are not equally susceptible to the same tone or color, so the intestines also require change if dullness is not to ensue. By varying the nutriment, effects are produced which, commencing in the liver and spleen, reach the *brain*. The heart too is influenced, beating more quickly, and happiness and pleasure are the result. The pleasures of the table which the members of a family or good friends enjoy together, undoubtedly contribute to health and the prolongation of life; but of course they should not be carried to excess. The Persian poet Ibn Jemin says:

"Hearken to the counsel that I give,
Not in want, nor superfluity,
But with what is meet and needful live."

Undoubtedly, overloading the stomach with food has an evil effect on the health of both body and mind. They are in this respect analogous to the effects of want of food which, besides bodily weakness, produces ill-humor, manifesting itself now as sorrow and depression, then again as anger and rage.

FROM HEAD TO ABDOMEN

The physiological explanation of the mutual interaction between brain and abdomen is explained anatomically by the fact that the tenth pair of nerves branching from the brain (which goes by the name of vagus nerve) is mainly concerned with *lungs* and *stomach*, exercising its sway from the head to the abdomen.

In the neighborhood of the neck its finest branches, like cobwebs, unite with branches from the seventh pair - the facial nerve - so that the vagus has a connection with the play of the *features* and with *hearing*. Other ramifications extend to the ninth pair - the glossopharyngeal nerve which controls the acts of *swallowing* and *tasting*. Others pass to the thoracic portions of the vegetative nerve system (the sympathetic) which gives life to the epithelium of the throat and causes *coughing*. In addition, other fibers penetrate the outer walls of the trachea and the epithelium of the larynx as far as the vocal chords to call forth "the sounds that arise from the throat." *(speaking and singing)*.

A delicate plexus of the vagus also terminates between the esophagus and the trachea near the heart and participates in the heart *pulsation*. Other ramifications form the windpipe and the bronchi. Further, a plexus of the two branches of the vagus passes along the posterior and anterior walls of the esophagus penetrating its epithelium and

muscular coat and controlling *swallowing*. Regarding the abdomen, a prolongation and division of the plexus of the esophagus embraces the anterior and posterior walls of the stomach, regulating the *appetite*. In this region the nerve splits up into filaments which weave in and out like a spider's web and can hardly be detected with a microscope. Also, they unite with filaments of the sympathetic nerve which are equally as numerous and microscopic. In this manner they obtain common control over the *glands* (liver, spleen, pancreas, kidneys, etc.) which are activated by the sympathetic system, as well as over the *blood vessels* densely enveloped by its plexus.

Having thus considered the various regions controlled by the vagus nerve, namely, the various openings (mouth, nose, fauces, lungs, windpipe, esophagus, stomach, brain cavity, blood vessels and heart chambers), which depend on it for their proper action, we must acknowledge the *relationship* between the various processes and activities dependent on the domain of this nerve. Further, the various functions of the vagus nerve depend largely upon whether it is supplied with enough *oxygenated* red blood. No other nerve region is of such importance for our continuing *existence*.

It has been shown experimentally that cutting through even one of the two branches of the vagus nerve will quickly cause a cessation of circulation in the corresponding lung, bringing on inflammation of the lung and, ultimately, death. And when both branches are severed in the region of the neck, the result is immediate death.

Fortunately, the opposite is possible up to a certain point. When the appetite is impaired and the enjoyment of life decreases, we need only supply the tenth pair of nerves with *oxygenated* blood and again the whole apparatus is set in motion.

The entry to the region of the vagus always open, is the *lungs*. By breathing cool air free of dust and poisonous gasses while engaged in a healthy occupation, we may vivify the sympathetic nerve filaments of the arterial system which are intimately connected with the respiratory apparatus. In this manner *respiration* produces not only appetite but happiness, enjoyment of life, love of justice, love of our fellowmen and a variety of other virtues.

On the other hand, respiration of *thin hot* air causes depression of all the nerve functions, producing bad appetite, bad digestion, imperfect formation of fresh lymph and blood and finally it affects the brain, causing an irritable state of mind.

A lengthy residence in hot climates predisposes to this condition with almost infallible regularity. Because the hot climate does not require movement to produce bodily warmth, the speed of the blood circulation decreases and this alone is an important cause of danger. Every impeded movement is converted into heat. And such heat in the kidneys, spleen and other viscera added to the external atmospheric heat tends to cause chemical decomposition of the stagnating blood in the ends of the capillaries and this has, in part, an *ammoniacal* character, causing more or less extended *paralysis*. Due to this fact there are deadly climatic diseases.

There is no doubt that our best nutriment is the air with its supply of *oxygen*. Indeed, we cannot eat it, but it may be said that we can *drink* it. Drinking cool air is equivalent to drinking water, for since the oxygen of the air chemically combines with the hydrogen of the nerve fat, water is, of course, produced. This explains the fact that when breathing cool air little thirst is felt, although we experience a desire for fat. In this respect, all travelers agree that the nearer they approach the North Pole the larger the amount of butter they are able to digest, corresponding to the quantities of fish oil and seal fat consumed by the native Eskimos.

Cool pure air for respiration is the life-giving principle for the soul. Our *spirit* drinks *gas*, it is its natural food!

For the constant renewal and maintenance of the animal substance it makes no difference whether the water-holding, nitrogen-hydrocarbons needed for their

replacement originate from vegetable or animal sources. Their movable nature permits them to be shaped into any form. For instance, the same grass and herb is transformed by the geese into goose flesh, by sheep into mutton, by cattle into beef, and the hen uses for her flesh and egg production not only grain but also meat waste and worms.

Sparrows and starlings feed their young on worms; the swallow catches gnats and other flying insects; the hedgehog devours worms and mice. And men nourish themselves not only from agriculture but also from hunting and fishing. So we see that nitrogen-hydrocarbons from a great many sources are used. Yet, as explained throughout this book, the nitrogen-hydrocarbons can bring forth plant and animal forms only when united and cemented with mineral substances, so that the *minerals*, as the movable, active *carrier* of the nitrogen-hydrocarbons, should be given much greater consideration. The nitrogen-hydrocarbons can be obtained from all and every plant and animal material, but not the minerals needed for the normal formation of new blood. There is a vast difference in the mineral (ash) content of our daily food. Proof:

A *variety* of food is necessary because there is no single nutriment capable of supplying our body with all the needed minerals, not to mention the required fat and protein. A cow or goat fed on only one certain kind of grass could not stay healthy, but since Nature lets *all* meadow and mountain herbs grow at various times, whose forms depend on the *various* proportions of their mineral content, the animal is able to extract the needed minerals for the growth of its individual body substance; the remaining dispensable content leaves the intestinal canal. This explains the reason why man and animal eat perhaps ten times as much food as is needed to replace daily the consumed body substance and why a one-sided *insufficient* food supply may be followed by a chemical *decay or* consumption of tissue in one or another part of the body.

Salads and raw vegetables for health and happiness. Begin lunch and dinner with a large dish of *un*cooked plant food such as: salads of green vegetable leaves, lettuce, endive, chicory, chard, radishes, spinach, sauerkraut, fennel, carrots, celery root with greens, cauliflower, Brussels sprouts, beets, dandelion greens and roots, wild greens, onions, leek, kitchen herbs, etc. For salad dressing use vegetable oil, vinegar, lactic vinegar, or yogurt, seasoned with chopped *onions*, mustard, parsley, kitchen herbs and a little sea salt. Make liberal use of onions and leeks as they are food and medicine. Since salads and raw vegetables are highly appetizing, nutritious and delicious, they should be eaten at the *beginning* of a meal to prevent the danger of overeating of animal protein. Men who call salads "rabbit food" should remember what such food does for rabbits, says Dr. W. W. Bauer: "The male rabbit is light on his feet, has no paunch and maintains lively romantic interests." (New York Times).

Hard boiled eggs. Put them on in cold water (they must be covered by it). As soon as the water begins to boil take them off the heat immediately and let them stand in the covered saucepan for another ten minutes. Then pour cold water over them and you will have hard-boiled eggs which are not only more digestible but also more tasty than the usual ones. Serve them with salad.

Vegetable soup. Slice 2 large onions and put into a hot pan containing 1 tablespoon each of plant oil, fresh ground barley or oats and millet, roast, stirring constantly. Now cut washed carrots, raw potatoes and celeriac, put them into an electric mixer, add water and grind them. Then add cut-up leek with their green tops, spinach, savoy cabbage, etc., according to season; put them in mixer and mince once more. Then put all the minced vegetables in the pan, add water, sea salt and seasonings, boil for about 10 minutes, then turn off heat and serve. In this way of preparation, the nutritive value of the vegetables is retained and the soup easily digested by young and old.

During World War I the Danish nutritionist *Hindhede* made an interesting experiment involving three million

people. During the war food in the form of imported grain and fodder was reduced by 40 percent, so that it was just enough for half the men and hogs together. Then grain and potatoes were fed to the people instead of the hogs and the barley was eaten instead of being fermented to make beer, the production of alcoholic drinks was forbidden and the bread grain was ground 100 percent. The result was that in 1917 no Dane suffered from hunger, and suicide and accidents, inflammation of the lungs, brain and kidney diseases. The Copenhagen people between 25 and 65 years showed 57 percent fewer deaths than a year before. The total result of Hindhede's research proved that overeating, particularly with animal protein, caused the most diseases.

POTATO FOOD, NOT SUGAR BREAD MAKES YOUNG CHEEKS ROUND AND RED

On June 17, 1889, a meeting was held, presided over by the Prince of Wales, to discuss the impotence of the medicinal art in fighting the leprosy of the inhabitants of India. With external remedies it is indeed impossible to cure it, nor can it be studied properly in a single individual. We must rather get a long-view perspective, observing the *manner of nutrition* in the various countries attacked by it. From this point of view we learn the following:

In the Hawaiian Islands the natives chiefly live on sweet fruits, bananas, coconuts, dates, breadfruit and mangoes, as well as pappaws which, with their melon-like fruits clustering around the stem, furnish the national food. To these are added fish. Bananas contain an extraordinary small amount of minerals, especially little of the sulfates, little potash and little calcium. Owing to their lack of earthy matter they are subject to decay shortly after they ripen. Fishes also contain but a small quantity of sulfates or earths (potash, lime, soda, magnesia, silica and iron) and they putrify within 24 hours.

The Norwegian lepers are found mainly among the shore-dwellers and islanders who live mostly on fish. Children become scrofulous if they receive watered milk without the addition of salt, so leprosy developed in India where at that time a heavy tax was imposed on salt, which the poorer classes could not pay. Salt protects meat from chemical disintegration and putrefaction, because it electrifies. Also in Germany leprosy was found among the poorer fisherman and islanders on the Baltic Sea living chiefly on fish. In Italy it is the *frutti di mare* and in France the one-sided living on sardines which furnish the predisposition to leprosy. Year after year the sulfates, calcium and iron pass away in the urine without a corresponding new supply. This eventually causes the chemical disintegration of the albumin of the blood, lymph and muscles and even of the bones which need earthy material for cement.

In Germany, the plague, black death and leprosy have ceased to be epidemic since *potatoes* have been universally raised and eaten. This is due to the minerals contained in potatoes. Dry slices of potatoes upon burning leave behind 4 percent ashes, of which fully 10 percent are composed of sulfate of magnesia. This may explain the disappearance of leprosy from England since potatoes have been imported in enormous quantities from Germany. And the Irish, because they eat herrings and potatoes, are free from leprosy.

Good potatoes with an abundance of earthy constituents have no scurfy skin and can be kept all winter, while potatoes grown with stable dung and nitrogen fertilizer instead of ground rock are scurfy and rot easily. It is the earths, always without exception, which impart durability and coherence to the flesh of fruit, as also to the tissue of the muscles.

The close resemblance of the ashes of

potatoes to the ashes of beef is shown in the following comparison:

	Ashes of Beef	Potatoes
Potash	41	58
Soda	2 1/2	3
Calcium	1 3/4	3
Magnesia	3 1/3	5
Hydrochloric acid	5	3
Sulfuric acid	3 1/3	6
Phosphoric acid	34 1/3	16
Silicic acid	2	2
Carbon dioxide	7	4

Everywhere in nature we can observe that a certain quantity of mineral earths makes all organic forms more durable and provides a greater resistance against chemical decay, therefore against putrefaction and decomposition. A typical example is the potato which is so rich in minerals compared to the apple which is very poor in mineral substance. Potatoes contain 20 grams of mineral earths per kilogram whereas apples only have 2 grams. Consequently, potatoes can be kept until the new crops come up, while apples are subject to rotting. A similar relationship exists between pinewood and oak. The former only contains 1/4 percent ashes while oak contains three times this amount. In a damp condition pinewood fairly soon turns to fungus whereras oak piles under bridges remain intact for hundreds of years.

Since King Frederick the Great of Prussia commanded the stubborn farmers under threat of punishment to plant potatoes and the other German states folowed suit, there have been no more plagues in Germany and no more black death. When will a second Frederick appear who recommends with the same authority and far-sightedness *ground rock fertilizer?*

As a contrast to the potato-eating Irish, leprosy and pestilence mostly occur in badly nourished nations, such as India where the people actually only eat rice and fruit, both of which are poor in earths and protein. The actual cause of the plague in India could alas, not be discovered by the German Plague Commission as long as the participating chemically-blind doctors were infected by the bacteria-research epidemic.

If the mineral-lacking blood gelatine and lymphatic juices easily disintegrate at normal temperature, how much sooner will this occur in tropical heat. Leprosy and pestilence in the deficiently-nourished nations in hot climates originate, in general, from putrefaction of the contents of the lymphatic vessels and the gelatine-producing connective tissue and, in particular, of the tissues of the lymphatic glands on account of a shortage of cementing mineral substances. And therefore send a whole group of people to India who return home without any results? It is worthwhile to quote from an article which, acording to the *Wiener Zeitung* (1897), was composed by the Austrian Medical Commision in Bombay on the pestilence. Extract:

> "We used the first period of time during our stay in this country where pestilence still rages by studying anatomically and clinically as many cases as possible. At that time the number of deaths by pestilence in Bombay still varied between 120 and 130 cases per day. This made it possible to have 44 dissection reports available, of which 40 related to pestilence cases; we also have available a large number of clinically, closely-observed pestilence cases. This frightful disease generally indicates a severe *blood putrefaction.* Until now we have seen no success from any therapy; according to what we have heard and seen, neither Hersin's nor Haffkin's serum seems to have had any effect in this connection. For the last two weeks the epidemic has been definitely decreasing, so we expect to start our return trip on May 1st and we shall then further study our collected data in Vienna."

With the microscope they persistently continue the search for the bacteria which they believe cause the pestilence and remain blind with a smelling nose in spite of the simple chemical fact that humid gelatine substance, consequently also the blood gelatine, is the more subject to putrefaction, the less cementing minerals are present.

Although the Indian pest need not frighten the inhabitants of Germany, yet other blood-disintegrating affections menace us. Namely, our nutriments in general (milk and flesh of our animals not excluded) have become progressively deficient as a result of the incorrect one-sided use of fertilizer with phosphoric acid, potash and nitrogen, so that consumption and cancer, artery and heart disease, liver trouble in man and all kinds of epidemics in cattle prevail in ever-increasing measure.

Against the consequences of such nitrogen-overloaded nutriments we have to depend on self-protection. The blood nutritive salts, the salts from mineral springs and especially the use of *ground rock fertilizer* and compost in all agriculture serve this purpose.

Due to the gelatine sugar present in the bile acids, these minerals become organically united, and, with the aid of the alkaline bile, they are led into the absorbing lymph system and from there into the blood, which thereby becomes protected against decomposition. In fact, on the whole, there exists no other effective healing method except by means of rational nutrition.

For a rational nutrition it must be considered that *all* usual food contains hydrocarbons as well as carbon dioxide. When the latter two unite with ammonia, then gelatine sugar (glycine) CHH COO NHHH is formed so that even the apparent meager food (such as potatoes, vegetables and herring) can form new blood gelatine. Yet not all nutriments contain at the same time the necessary cementing minerals in sufficient quantity and variety, in order to maintain the tissues constantly in good condition. In what nutriment are they then rationally available? This question is often put to me. And my answer is always: Eat daily plenty of potatoes with butter, and drink milk with them; further, many vegetables, green leafy salads (uncooked vegetables) are very beneficial. Potatoes contain in each kilogram (2,2 pounds) 750 grams water, 5 grams nitrogen and 20 grams minerals, plus the hydrocarbons. Therefore, when we do not consider the water, then 1000 grams dried potato substance contains 20 grams nitrogen and 80 grams minerals. And these 80 grams minerals contain nearly all physiological, that is, the nutritive salts necessary for growth and health, namely: about 17 grams potash, $1^1/_2$ grams soda, $25^1/_2$ grams calcium earth and 13 grams magnesia earth, united with $6^1/_2$ grams phosphoric acid, 5 grams sulfuric acid, $3^1/_2$ grams silicic acid and 2 grams chlorine as well as small amounts of iron, manganese and fluorine. Is this not wholesome food? The Irish become 100 years old on potatoes and herrings, the people in the Alps live long on potatoes and milk with chicory coffee. In Central Europe the potato is a highly important nutriment.

"Yes, but potatoes put on weight!" What nonsense! Will you please, madam, open your pretty eyes instead of accepting for bare truth what chemically-blind people advise you. Do the Irish and the people in the Alps who consume potatoes, suffer from corpulency? It is clear that corpulency must have another cause, which I have already stated: It is the deficiency of physiological earths and salts in our nutriments, which causes corpulency, assisted by insufficient breathing due to insufficient physical activity. The greatest number of affections originate in the kitchen and from lack of activity in fresh air.

For instance, the *liver diseases*. It is not entirely wrong that the diagnosis of at least one-third of all patients reads liver disease. In many cases this diagnosis has a serious significance when the blood by constant abuse becomes stagnant in the liver in such a way that it separates into fibrin and blood serum. Then hardening (cirrhosis) results. Or it disintegrates into blood cake and serum, so that the blood cake is subject to putrefaction resulting in ulcers in the liver. On the other hand, the regular volume increases, called liver swellings which occur frequently and can be cured according to the adage: An ounce of prevention is worth a pound of cure. But how do they originate? The most frequent cause of liver swelling finds its source in the kitchen and cellar and

instead of the expression liver disease this leads us to the diagnosis "carbon dioxide disease."

The volume increase of the liver is just an indication of the entire venous system becoming subject to abnormal swelling, that is, the carbon dioxide of the venous blood tends to become gaseous. Thus the vein walls, which are equipped with weaker sinewy tunica than the arteries, yield and thus become expanded. This condition is most clearly visible in the liver, because this soft glandular organ is interspersed with a *double* venous system; namely, on the one hand, by the branches of the liver vein corresponding to the liver artery and, on the other, by the branches of the portal artery leading into the liver. This portal artery gathers all venous blood which comes from the intestines, in particular from the spleen gland, and from the 14- to 26-feet long alimentary canal. Further, we must remember that the intestines are lined with thousands of fine, hair-like tips (epithelium), each of which contains a fine nerve branch, which for its function is nourished by oxygen-containing artery blood and after delivery of the oxygen to the nerve substance, *flows back as venous blood* by means of the capillary net of the ephithelium. There are as many capillary branches of the two mesenteric *arteries* as there are intestinal *veins*. The latter return the de-oxygenated blood which is now laden with the oxidation products of the nerve fat, i. e., water and carbon dioxide.

From all these numerous intestinal veins the blood gathers into the spacious portal artery, which shortly before its entry into the liver also absorbs the blood of the powerful spleen vein. Therefore, one can imagine what considerable quantities of vein blood even under normal conditions collect in the liver, which has the function of using the blood for the body economy, the blood now being richer in protein. From this the protein-rich bile substance is separated, which empties through the bile duct, together with the juice of the pancreas gland, into the duodenum. Here the digested food coming from the stomach permits the new formation of normal blood protein. At the same time the eaten fat substance is transformed into a fine emulsion which as chyle is sucked up by the chyle arteries of the alimentary tube in order to be mixed into the bloodstream in the subsclavian vein and left jugular vein, thereby providing new material for new strength.

It is understandable that a supply of abnormal quantities of venous blood rich in carbon dioxide will swell the hot liver gland, thus the branches of the venous portal artery suffer a volume increase. To the question, how such an abnormal supply of venous blood can occur, the answer is: by excessive eating and drinking, in particular, distilled liquor.

Diabetes. While discussing the excessive consumption of meat, white bread and wine, and the overfilling of the liver with portal artery blood, I wish to explain why it is one of the many causes of diabetes. Diabetics should satisfy themselves mainly with *potatoes* and *butter* instead of meat which is digested very rapidly. Certain diabetics are true gluttons. The arteries and veins of the intestines are constantly overfilled with blood and, according to the aforesaid, the portal artery and liver too. What is the conclusion? It follows that the branches of the portal artery occupy for themselves alone the space of the liver gland, but leave practically no space for the branches which supply the *oxygen* permitting the nerve functions of the liver artery. The insufficient quantity of oxygenated blood just suffices to oxidize the gelatine sugar of the blood protein into urea, whereby the blood sugar remains *un*oxidized. (Blood protein consists of 18 parts blood sugar and 18 parts gelatine sugar.) But it is exactly the oxidation of this blood sugar that provides the higher temperature in the liver which is necessary so that the liver cells can separate the bile substance from the blood protein.

Due to insufficient arterial blood only a defective bile secretion results and thereby the absorption of chyle from the food is correspondingly limited. Meat poor in minerals wanders mainly un-

used through the alimentary canal. Such diabetics are *always hungry*. Contrary to meat, *potatoes* contain all the necessary physiological minerals for the formation of normal blood protein. *"This is it,"* says the intestine, *"which I must have! This I hold fast and make use of it."* Therefore potatoes satisfy, they pass through the intestines more slowly than meat and white bread and thus claim far less arterial blood in the digestive tract. Now, correspondingly less blood flows to the portal artery and no longer disturbs the liver. To prohibit the consumption of potatoes to diabetics, especially when grown with ground rock, would only make sense if the potato-eating working man suffered from diabetes, but no one has ever heard of such a thing.

Evidently diabetes has various causes (paralysis of the respiratory nerves by emotion or by tobacco smoking, continuous exposure to colds, as well as stagnation of the liver blood due to a sedentary life); it is an irrefutable fact that meat eaters and wine drinkers form practically the exclusive clientele of *Carlsbad* and other mineral springs. The meat and white bread consumed by these patients contain mainly potassium phosphate and with the wine and beer which again contains but potassium phosphate, the sulfur, calcium, iron, soda and silica constituents of the blood are systematically excreted with the urine.

To be sure, not only diabetics, but practically *all* pilgrims to Carlsbad can be called by the collective name of *"carbon dioxide* patients" instead of that of their particular disease. Carbon dioxide COO is poison in the blood. Without sufficient oxygen blood no nerve region can function normally. In order to retain the inhaled oxygen *red blood* discs are required and for their formation they not only need potassium and phosphoric acid, but also calcium, magnesia, iron, manganese, silicic acid, fluorine, sodium carbonate and sodium sulfate. The Carlsbad mineral water supplies all these physiological minerals necessary for the formation of new protein, but these can be obtained more easily in the form of nutritive salts and above all by means of the large variety of *vegetables,* always provided that they have been grown with ground rock and compost. The editor has just read an article on the nutrition of the winners of the Olympic Games 1960 in Squaw Valley and Rome: "The greatest achievements were obtained by a lacto-vegetarian diet, with little animal protein, no alcohol, no nicotine, no coffee."

Life is great when health is good, therefore use your God-given intelligence to safeguard your health, your most precious possesion.

OUR PERPETUUM MOBILE

That our organism is a very perfectly constructed machine is recognizeable at the first glance. But every machine has only a limited time capacity for working, corresponding to the amount of fuel with which it is provided. With regard to the body, after a certain amount of nerve fat has been used up, a sensation of exhaustion occurs in the muscles and in the brain. We fall asleep and our bodily machine appears to stand still. Must we not ask ourselves the question how it happens that our bodily mechanism apparently recommences to work by itself after having been inactive for eight hours? Let us explain the reason for this.

The Creator of all things has taken care to provide a special device by means of which a source of energy is produced from nothing, so to speak. It bestows upon our organism for a period of 60 to 80 years the character of a "perpetuum mobile." This device consists of the *spleen,* an organ of which even the most highly-esteemed physiologists, with Dubois-Reymond at their head, declare with emphasis that we know nothing of its function.

The spleen plays the role of a rejuvenating factor in the sense of a relay station and this is effected by means of an apparently insignificant but really important device. The fine terminations

of the arteries in all other parts of our body pass into the capillaries of the veins which return the blood to the heart. But in the case of the spleen this is *not* so. Here the arterial capillaries suddenly cease at a size of 0,2 mm, in diameter and turn into small bubbles or sacs, called after their discoverer the Malpighian corpuscles. It is plain that the circulation in the arterial capillaries of the spleen is then brought to a standstill. However, since the ferruginous blood is, as discovered by Faraday, magnetic in character, it follows that the compulsory stoppage of the magnetic blood current must, in accordance with the laws of physics, produce *electricity*. Proofs exist that this is actually the case.

In the first place, the red corpuscles turn into fluid plasma inside the corpuscles, an action which is analogous to that which takes place when electricity is passed through blood which has been taken from a vein. From this we may conclude that the impact of the magnetic blood current upon the walls of the corpuscles *convert the magnetism* into electricity. We then perceive that minute electric discharges take place from the spherical walls of the corpuscles into the blood. This source of energy, electricity, due to the coming to rest of the magnetic blood, may be regarded as originating out of nothing.

The proof that the accumulated electricity displays itself in the manner described is shown, secondly, from the fact that the fluid plasma penetrating the delicate membranes of the corpuscles contain as products fatty acids (formic, acetic, propionic, and butyric acids) which are the results of electric decomposition. These fatty acids have been produced by the chemical decomposition of nerve fat. The delicate terminations of the nerves of the spleen, which proceed from the solar plexus of the sympathetic system, accompany the offshoots of the splenic artery step by step even to the corpuscles. Where the arterial capillaries stop, the nerves stop also, and begin again with the venous capillaries running parallel to them. Now, as in the case of the electric carbon lamp, small incandescent particles of carbon are projected from one pole to the other so the electrolytic decomposition products (in the form of formic, acetic and other fatty acids) pass into the rejuvenated plasma *(Pulpa splenica)* which is thereby rendered acid.

The venous capillaries are supplied with acid splenic secretion, so their contents are of course acid. Finally, the splenic acid is carried through the portal vein to the liver. As all acids act as electric excitants, this blood from the portal vein must supply the necessary electric tension to the hepatic cells of the liver in order to secrete a strongly digestive bile which, owing to its alkaline nature, is the electro-chemical counterpart of the acid splenic blood. The action of the liver is thus also dependent on that of the spleen. Without the spleen there can be no bile secretion; without the secretion of bile no absorption of chyle from the chyme, consequently no proper nourishment of the organism and a diminished formation of new blood and nerve substance. An ever-increasing exhaustion therefore follows.

As the absorption of chyle takes place principally at night at which time our bodily machine appears to stand still, it follows that this stoppage is only apparent; the truth is that the machine is working in the region of the abdomen to produce fresh fuel. In hot climates the inadequate respiration of oxygen produces a stoppage of circulation and swelling of the spleen instead of a swift exudation of the plasma through the corpuscles. Thus the natural relay station, which, under ordinary conditions, supplies the splenic blood with electric energy in the form of formic and acetic acids, is thrown out of order. Under these circumstances our bodily machine gradually ceases to be a "perpetuum mobile." Disorders of the spleen result in liver complaint, indigestion, constipation and all the numerous disturbances known under the heading of climatic fever.

THE DAILY LOSS OF BLOOD SALTS

The blood salts lost daily must be replaced daily. *Health* is the continuance of the cohesive *electric* force, while disease is the diminution of it, so that restoration of health is the same thing as a *recuperation of electric energy*. It is only in accordance with this standard that therapeutics (the art of healing) can apply the right remedy.

Internal diseases are brought on by:

a) insufficient oxygen breathing in itself,

b) difficult absorption of oxygen by insufficient number of red blood corpuscles,

c) strong emotions,

d) atmospheric influences such as hot, moisture-laden air,

e) a partial blood stagnation which reduces the electric nerve tension in certain regions.

In the lungs the inhaled oxygen chemically combines with the iron-holding gelatine of the blood (hemoglobin) and thereby, in accordance with each chemical union, *electricity is produced*. The electricity so produced tends to flee to a distance, it therefore hurries along the spiral filaments of the sympathetic nerve which surround the artery walls, right on to the terminals of the capillaries which enclose the nerve endings.

At the same time, an *induction current* is set up in the nerve strands running parallel to the blood vessels, which again tends to flow to a distance; thus it follows that the created electricity proceeds to the ultimate nerve ramifications where it manifests itself in the form of attraction. Due to the magnetic force of the nerve strands the iron-holding hemoglobin in the blood vessels becomes *magnetic* and is attracted by the nerve ends of the sympathetic as well as the cerebro-spinal system and so is set in motion and circulation. In other words:

a) Food being deficient in minerals creates *blood* of poor quality and causes weak, badly-nourished *nerve* material.

b) Weak nerve material means that it lacks the phosphoric salts through which it becomes electrically excitable and so possible for it to attract the blood like a magnet,

c) The blood also does not contain enough iron to cause intense attractability; also, it is deficient in calcium (lime) and sulfur for the formation of red blood corpuscles to ensure adequate circulation of the blood,

d) Finally, blood is often deficient in blood salts which electrically excite the walls of the blood vessels and nerve trunks.

All this is due to lack of oxygen breathing and devitalized food. If this very important source of electricity (respiration of oxygen) is restricted for any reason, the amount of electricity created, and, consequently, our vital force, is diminished in the same proportion. So it happens that the process of chemical disintegration of the gelatine substance of our body, which should begin only after death, attacks certain organs during life, most quickly those organs requiring a considerable supply of air, i. e., the *lungs* and the dependent *digestive apparatus*.

As a visible cause of the reduction of the oxygen-breathing blood corpuscles I have indicated an insufficient amount of sulfur, calcium and iron in our daily food. In particular I have called special attention to the most common and the least understood cause of diminution of the electric nerve tension and of deadly diseases, namely, the *loss* of electricity-exciting *blood salts*. This daily loss is in strict accordance with the biochemical law, because the combustion product *urea requires mineral salts* with which it forms durable double compounds to be secreted as urine. If it cannot find enough mineral salts in the blood, through water absorption from the venous blood it changes into ammonium carbonate which possesses a *paralyzing*, even *blood poisoning effect*.

In this connection we find more or less intense degrees of chronic ailments. Sometimes singly, sometimes with several of the aforesaid detrimental influences, the results appear in the form of anemia including leukorrhea, the dys-

crasic affections (poor mixture of blood saps), pulmonary consumption, dropsy, rheumatism, arthritis, diabetes, cramps, catarrhal affections and fever.

Please remember that our body consists mainly of *gelatine* substance which possesses a remarkable elasticity and so provides the organism with a most important source of energy. The cold, gelatinous jelly obtained by boiling calves feet in water vibrates elastically at the slightest touch. This elasticity is the characteristic peculiarity of gelatine, it represents a constant automatic source of energy which, so to speak, costs nothing since nothing is used up. The elastic whalebone gives proof of such gelatine in its most concentrated form. But even when united with water in the form of *cartilage* and *tendons*, we have numerous proofs of its elasticity, e. g., we bend the cartilage of our nose and ears out of their natural position and they return to their original place without any effort on our part. Such elasticity of the gelatine is without doubt due to its ammonium and sulfur content.

As further example of this natural elasticity I mention the sinews of the race horse, the hare and the kangaroo. Also, the upright position of man is attained without trouble thanks to the elastic nature of the sinew bands surrounding the separate vertebrae, as can be seen in carving the back of a hare.

This spring-like character of gelatine is made use of in various organs of the body as an inexpensive source of energy, e. g., in the *lungs*. How much cartilaginous substance they contain is noticed by the housewife in preparing lung hash. To this elastic gelatine we owe the uniform expansion and contraction of our lungs during inhaling and exhaling. The results due to a diminution of sinewy gelatine through malnutrition caused by demineralized food and its effect on the automatic movements of the lungs can easily be imagined. From the intestines of hens and cats gelatine may not only be boiled out, but they are manufactured into all kinds of elastic strings for the violin and other string instruments. Thus the network of gelatinous, tendinous matter extends throughout the whole body from the brain to the intestines.

The chemical constituents of *gelatine* are formed from a number of *hydrocarbons* combined with *ammonium carbonate* as in this formula:

Gelatine (Glue) { gelatine white (leucine) plus gelatine sugar (glycine = glycoprotein) = CHH CHH CHH CHH CHH COO NHHH = CHH COO NHHH

From the coagulated casein of milk "casein gelatine" is prepared and the child obtains his "blood gelatine" from the casein of milk as expressed in the Book of Job 10 : 9 - 10 — "Remember, I beseech thee, that Thou hast made me as the clay and wilt Thou bring me into dust again? Hast Thou not poured me out as milk and curdled me like cheese?" Organic form is created from gelatine material and the resulting similarity of chemical composition explains how it is that when any particular region falls prey to chemical decomposition, others are quickly similarly affected.

Urea. Through oxygen-breathing the hydrocarbons of the gelatine are burnt (oxidized) into carbon dioxide gas and water vapor and there remain 2 parts ammonia with 1 part carbon dioxide in dehydrated form as *urea:*

$$CO\left|\begin{array}{l} O\begin{matrix}H\\H\end{matrix} \\ \end{array}\right| \begin{array}{l} HHN \\ HHN \end{array}$$

Urea is an ever -present companion of the animal nerve function; it means fulfilled work, electro-chemical separation and through water absorption it can be changed back into animal substance, thanks to the astounding mobility and transforming ability of its ammonium phosphate.

Our earth is a child of the *sun,* having been thrown into universal space, receiving as a dowry a glowing core of sun porcelain glass together with a hot shell of sulfur-phosphorus-cyanogen sun atmosphere. After a certain time of cooling only the primeval atmosphere sank into the primeval sea and due to the combining of the cyanogen gas CN with the salty sea water HHO, the cyanogen became non-poisonous, and there was formed soluble living protein substances such as carbonate, oxalate, formate, sulfate and phosphate of ammonium NHHH. In these conversion products we already recognize the material essential for the creation of plant and animal bodies.

I have explained in detail that the chemical basis of our body substance rests upon altered groups either of cyanogen CN or hydrocyanic acid HCN (prussic acid). The illustrations below show these groups in reference to the flesh bases creatine, sarkin, xanthine and urate of ammonia.

In this way it is most easily explained how, similar to the production of lactic acid as a split product of grape sugar, the gelatinous tissues of our body may give rise to substances that in part bear the character of ammonia, in part that of hydrocyanic acid. Doubtless these decomposition products are of *poisonous* nature in their origin and only become *innocous* through chemical combination with *water.*

Let us keep in mind that *health* depends upon the *holding together* of our bodily substance maintained by the continous action of electric energy by breathing; while *disease* is characterized more or less by a chemical *disintegration* or falling apart of the same, as a preliminary to death.

For a better understanding let us consider the *decomposition* of dead bodies, characterized by an offensive odor. This bad odor is due to the fact that the fat which largely composes our body is no longer held in combination with ammonium carbonate and earthy bases, because the electric energy which caused their orderly combination into an organism has disappeared. Consequently, considerable quantities of gas or spirits — ammonia, carbon dioxide, ammonium sulfide, butyrate and capronate — are set free. These gases are the principal cause of cadaverous odors. Besides them the decomposition products of sugar and gelatine appear, i. e., lactic acid, leucine and tyrosine. Similar products are produced when meat is digested in the stomach, digestion being a species of decomposition. This explains the offensive odor of vomit.

On the other hand, such decomposition products are *not* produced from the muscular and connective tissue of an intensively electric, living body; they arise only in case of disease and when the substance from which they originate is essentially gelatine, consisting of fat $2(C_6 H_{12})$ and dehydrated ammonium carbonate $2(CO, N_2 H_4)$. This gelatine substance is distributed throughout the whole body, although in one place more than in another, for instance, in the bones, connective tissues, sinews, intestines, etc.

The nerve fibers contain relatively little gelatine, being composed almost entirely of fat together with ammonium

phosphate. Since the ammonia and the phosphoric acid together with oxidized fatty substances can take gaseous form, e. g., ammonium acetate and phosphorated hydrogen (phosphine), the latter of which causes part of the evil odor mentioned, it follows that the nerve substance in spite of the numerous protections against too rapid a consumption with which it is provided, is still liable to decomposition since the chemical basis of our body material is fat and gelatine. Through fat and gelatine in combination with phosphoric acid, without which neither growth nor conservation of the organism is possible, bones, muscles and nerves are also pathologically related. The chemical distinction between them is essentially due to the fact that in *bone* phosphate of *lime* (calcium), in *muscle* phosphate of *potash*, and in the *nerves* phosphate of *ammonia* are glued into combustible substances, partly hydrocarbons and partly cyanogen, by means of gelatine.

With this *similarity* of chemical composition we can understand that when a single region of the body falls prey to chemical decomposition, other areas are soon similarly affected. Chemically considered, our body is an *integral whole* and only from the anatomic point of view does it appear as a composition of parts. The characteristic chemical basis is gelatine by means of which our bones, muscles and nerves are glued together internally and to one another. This fact is of great importance both in pathology and in physiology.

Under the heading, *Grape Sugar and Its Winy Fermentation,* we have seen that its chemical splitting brings forth new partly-noxious products, such as the man-wrecking ethyl alcohol. Permit me now to draw your attention to a further classic example:

when *wood* of the forest trees (cellulose) is heated in steel retorts we obtain a series of quite new products which manifest entirely *different* properties than the original component parts. This knowledge certainly is a valuable gain for the understanding of the functions of life and health. In dry distillation wood yields, amongst others, partly *poisonous* products: acetic acid (wood vinegar), methyl alcohol (wood alcohol), acetone, butyric acid, carbolic acid, tar, etc. No one would imagine that the wood of a beech tree could emerge from these substances. On the contrary, it is a known fact that wood consists essentially of cellulose which by means of sulfuric acid and water can be converted back into sugar. And the sugar is produced from the combustion products carbon dioxide COO and water HHO, which under the influence of the sun electricity are partly changed into *burnable* hydrocarbons CHH. The cellulose group shows hydrocarbons next to carbon dioxide and water:

COO, CHH, CHH | H
CHH, CHH, COO | O
| H

During the distillation the existing atom group is destroyed and the aforesaid partly-*poisonous* new combination result, such as:

Acetic acid:
CHHO
CHHO

Butyric acid:
CHH
CHHO
CHHO
CHH

Methyl alcohol:
H | H
C | O
H | H

Acetone:
HH | H
CCC | O
HH | H

Carbolic acid:
HHH
CCCCCCO
HHH

In the same way as the stinking, poisonous carbolic acid is produced from odorless wood by heating, so foul-smelling putrefaction products result from odorless flesh and blood in the excessive heat in hot climates. Indeed, from animal substance large amounts of potassium hydrocyanide can be obtained when potash is added and the water is evaporated from the animal substance by heating. The chemist achieves this by placing a fire under a pan; the sun, however, does it by parching heat, without fire, for example, in the hot damp

river valleys of the tropics, where pest and cholera appear regularly. Water vapor absorbs about 8000 times as much heat as dry atmospheric air, so that heat and moist air *carry off the body electricity* and at the same time decrease the proportion of oxygen in the air. Such unhealthy weather influences bring about a chemical decomposition of the blood and lymph, whereby hydrocyanic acid (prussic acid) is liberated, manifesting its *poisonous form-destroying* property.

The fact that out of all possible animal material — sinews, skin, muscle flesh — potassium cyanide can be produced when heated with potash (potassium carbonate), and the fact that the chemical analysis of the muscle flesh shows the elements of cyanogen CN or hydrocyanic acid (prussic acid CNH), have entitled thinking chemists to presume that cyanogen played an important part during the primeval time of the creation of animal bodies. Yet this presumption was expressed but in a timid way, since experience proved that cyanogen and hydrocyanic acid destroy life.

The secret lies in the fact that prussic acid, in chemical combination with water, converts into *non*-poisonous ammonium salts. The tuberculin poison, which Robert Koch prepared by causing gelatine mixed with extract of horse flesh to decompose *chemically,* soon loses its poisonous properties after dilution with water. This latter reaction corresponds with the combination of hydrocyanic acid CHN being intersected by 2 water HHO which produces formate of ammonia

C(OHH, OHH)HN = COHHO HHHN.

Again, 2 cyanogen CN with 4 water HHO form oxalate of ammonia

C(OHH, OHH)N _ COOH NHHH
C(OHH, OHH)N COOH NHHH.

And the poisonous ethyl cyanide with 2 water forms propionate of ammonia

HCN, CHH, CHH + 2HHO
= CHH, CHH, CHHOO, HHHN.

In proportion to whether carbonate, formate, cyanate or oxalate of ammonia causes a circular union of cyanogen CN or hydrocyanic acid HCN, thus forming a compound, we can explain the chemical differences between the flesh bases sarkin, xanthine, creatine and urate of ammonia.

Conversely, a poisonous substance of the nature of prusic acid may be produced in our body by the withdrawal of water from the partially-oxidized hydrocarbons of gelatine and the ammonia. Such a reaction becomes understandable through the method by which I have artificially produced coniin $C_8 H_{15} N$ found in poisonous hemlock *(Conium maculatum).* This anhydrous substance is obtained when absolute alcohol $C_2 H_4$, HHO, acetone $C_3 H_4$, HHO and anhydrous ammonia are allowed to react upon one another, the ammonia combining with 1 molecule alcohol and 2 molecules acetone by splitting off 3 water molecules.

Poisonous as *coniin* is, it can be turned into innocuous butyric acid by the action of water and air when ammonia is withdrawn by diluted acids. Three hydrocarbon groups then unite to form the common group $C_8 H_{12}$, similar to the production of fusel oil $C_5 H_{10}$ HHO from aqueous solution of tannin in the presence of calcium salts. The new group $C_8 H_{12}$ in the presence of alkali and air absorbs 2 water and 2 oxygen, whereupon two parts butyric acid with $C_4 H_8$ OO each are separated. Here, acids, alkalies, water and air act together to reduce the poisonous character of coniin which resembles prussic acid. *Acids, mineral bases, water and air,* these natural remedies, must be borne in mind in all therapeutics, since we have learned:

1) that from innocuous fatty acid unions with ammonia, poisonous substances of the nature of prussic acid can be produced by dehydration;

2) that, inversely, prussic acid compounds can, by the action of water together with acids, or mineral bases, be reconverted into harmless fatty combinations;

3) that the incomplete oxidation of sugar, fat, gelatine and albumin produces a chemical separation of their atom groups.

Inasmuch as sugar, fat and albumin form a connected trinity, as one of them

can be produced from the other, it becomes evident from their inner mutual relationship that both, separately and together they are subject to the common fate of chemical decay.

I am convinced that if Dr. Koch were acquainted with these chemical facts, namely, the electro-chemical disintegration of our ammoniacal blood, as is actually the case in *cyanosis* and *dropsy*- the "Siamese twins" of pathology — he would cease to regard the bacilli-bacteria as the causes of disease, but rather would recognize them as the *results* of disease; and he would abandon his extraordinary system of pathology which consists of employing the poisonous decomposition products of blood albumin (the bacilli-bacteria) as a remedy and vaccine for tuberculosis, small-pox, etc., i. e., to cure the continued decomposition of blood albumin and lung tissue.

Intense nerve tension can produce *snake poison, rage poison, insect poison;* atmospheric heat: *spleen poison, pox poison, pest poison, cholera poison;* natural putrefaction: *cheese poison, sausage poison, dead body poison (ptomaine).* All of these hydrocyanic acid poisons cause a similar splitting process in case of bodily transmission (infection). For example, Dr. Ignaz Semmelweis of the University of Vienna discovered in 1847 the cause of childbed fever in women. The medical students dissecting corpses transmitted the ptomaine poison to the expectant mothers whom the students examined afterwards. Thus, medicine entered the era of "antisepsis," including improved sanitary measures in the cities for garbage and sewage disposal, wholesome drinking water, pure air, etc.

Under normal conditions the body substance of man and animal is protected against poisonous decomposition by its water content. Water accounts for about $^3/_4$ of the total body weight. Incidentally, our cyanogen-containing tissues are produced from liquid blood protein by chemically separating water. The more water is separated the more solid the remaining substance becomes, e. g., the sinewy fibrin, out of which potassium cyanide (as stated previously) can be extracted.

Reversely, muscle flesh kept in water for about twenty-one days and protected against putrefaction by airtight sealing will chemically unite with water and convert into liquid protein. Such a fusion process happens before our eyes within a few hours when we lay meat or fish into water. This process of liquifying coagulated blood, fibrin, accumulated rheumatic material (urate of ammonia) and stagnating blood in the capillaries (causing fever) can also be obtained by *hydropathy* (a method of treating diseases by external use of *water).*

Miasma. Here I wish to explain kinds of substances which cannot be classified under bacteria, because they are *gaseous* and entirely *invisible,* apparently *bodyless* yet possessing genuine *infection* danger. These miasmas are a more serious danger than bacteria because they can reach the blood without scratching the skin, by getting inhaled. What a radical influence these miasmas can have on the nerve system, and therefore on the whole organism, we can see from the offensive odor emanating from putrefying carcasses and which clings a long time to furniture and walls.

This corpse odor consists of bodily substance entirely free of earthy or ash material, as exemplifield in the shining-like-silk caffeine of the coffee bean or the stone-hard ammonium carbonate which under heat transforms into air (gas). These mineral- or ash-free substances of corpse odor consist of combinations of the volatile hydrocarbons with the volatile ammonia and are characterized as oxidation products, namely, products that have lost a number of their hydrogen atoms.

When these lost hydrogen atoms are chemically re-attached, then again odorless normal substances result. (This explains the mystery of how, from offensive-smelling intestinal contents, odorless lymph juice, blood and muscle flesh are produced.) This is caused by the decomposition of water (body moisture) into its constituents hydrogen and oxygen under the electric influence of the nerve function. The hereby-liberated hydrogen gas effects the chemical restoration by

adding itself to the atom groups of the offensive-smelling gases, thereby changing their nature. The fact that hydrogen gas is found not only in the exhaled air from the lungs but also in the intestinal gases, leaves no doubt about the production of hydrogen gas in the said manner.

The chemical process can be observed when decaying meat is treated with tin chloride Sn_2 Cl and hydrochloric acid HHCl. Thereby the chlorine content of the hydrochloric acid converts the tin chlorure into chloride Sn_2 Cl_2. The hydrogen of the hydrochloric acid does in *statu nascendi* its reducing work, changing the offensive decomposition odors into odorless bodily substances, namely, the ordinary gelatine and protein split products *leucine, tyrosine, asparagine and glutamine,* which proves that these substances by the absorption of oxygen and separation of water change into offensive-smelling bodies, forming their origin and source.

How the chemical addition of *hydrogen* can produce new substances with different properties is illustrated by the typical example of the conversion of nitrobenzol into aniline, whereby, of the 6 atoms hydrogen, 4 are used up in order to separate 2 atoms oxygen to form water. The remaining 2 atoms hydrogen stay with the atom group. In a similar way, succinic acid is created from malic acid by the addition of hydrogen and separation of water and, again, succinic acid transforms into butyric acid in the same way. When we remember that succinic acid is a split product of sugar during its winy fermentation, so even the non-chemist can appreciate how during organic life processes the cohesion, shifting and transposition of the nitrogenous hydrocarbon groups can take place by addition or separation of water, ammonia, carbon dioxide, hydrocarbon, hydrogen and oxygen.

Leucine (gelatine white) CHH CHH CHH CHH CHH COO NHHH is gelatine sugar (glycine) to which 4 hydrocarbons are attached, forming white odorless small scales with satin luster. It can, Proteus-like, change into carbon dioxide gas and fusel oil ammonia (amylamin) and the amylamin by oxidation turns into valerianic ammonia. The latter, of a very offensive odor produced from the gelatineous connective tissue, plays a role in foot perspiration.

Tyrosine C_9 H_{11} NO_3, meaning cheese substance in conection with decaying bodies, is changeable into hydrocumaric acid, acetic acid and ammonia. All amines appearing during decomposition show a similar trend.

Glutamine C_5 H_{10} N_2 O_3 (lactamid glycocol) is a protein split product and decomposes into lactic acid, carbon dioxide and ammonia by oxygen absorption.

Asparagine is diglycocol and splits into malic acid and ammonia.

Through *hydrogen absorption* the various protein split products become condensed into their original basis substance, therefore, its *cohesive power* and property are exactly the opposite of decomposition, which means the *disintegration* or falling apart of the protein molecule in the form of putrid *fermentation.* The latter process is similar to *winy* fermentation whereby sugar splits into 2 molecules hydrocarbon hydrate (spirits of wine, alcohol) and 2 molecules carbon dioxide.

This fermentation process once started at a certain temperature infects and *contaminates* all remaining unsplit sugar with the result that the fermentation lasts as long as the fluid contains sugar. In the same way, once putrefaction begins, particularly at blood temperature, it will *infect* and *contaminate* all similar substances coming into contact with it.

The odor of trimethylamine (herring brine) in scarlet fever, in measles the odor of plucked geese called chenochol acid, and other *miasmas* occuring during decay of conective tissue and mucous substance such as diphtheria, even those recognizable only to a fine sense of smell, are the real distributors of chemical decay. In order to explain the infectious effect of gaseous chemical split products and at the same time prove the *antiseptic* effect of hydrogen as having practical use in therapeutics. I wish to deal with *indole* C_8 H_7 N, this extremely offensive odor which results from decaying protein and is peculiar to the pancre-

atic juice, the intestinal contents and excrements.

Indole $C_8 H_7 N$ is a relative of the aniline oil $C_6 H_7 N$ which is obtained from the bone gelatine during dry distillation. Its molecule possesses 2 atoms carbon more, and must be considered as oxidized dimethyl-aniline $C_2 H_4$, $C_6 H_7 N$, having lost 4 atoms hydrogen. In the intestines this decay product of the blood gelatine is *infectious,* i. e., it causes further chemical decay including the digestion. However, in the lungs where only healthy blood must circulate, indole is a poison (cloaca gases). Whereas aniline has an agreeable honey scent and actually is produced in the honey out of plant protein, indole, on the other hand, has an indescribable stench. In concentrated form indole is a crystalline mass, a *solid* substance which, similar to water vapor, liquid water and snow, can be fluid as well as gaseous having an extraordinary firm adherence to other bodies.

For study purposes, a chemist in Munich distilled the contents of the cesspool of a Munich hospital. The result was catastrophic. In spite of washing, bathing, ventilating and disinfecting, the stench so adhered to the martyr that he became the horror of society and for weeks he dared not mix with people. However, he himself did not notice the bad odor similar to that of the farmer's help, who comes from the cow barn and enters our living room.

Now, the consolation: Indole has the property to form odorless oxindole $C_8 H_7 N O$ through oxygen absorption. This has the property, like all gelatine or protein split products including tyrosine due to their content of glycocol COO CHH, to unite with acids and bases and thus organically to combine with *salts*. Even urea which is a characteristic representative oxidation product of glycocol has this same property. This means that the terrible-smelling indole can become chemically bound by means of a calcium salt and so rendered inoffensive.

Not the volatile substances chlorine or carbol are fit for powerful disinfection, but a solution of *calcium chloride* $Ca Cl_2$, meaning an *earthy mineral* substance. A five percent solution of calcium chloride is highly efficient in disinfecting rooms after the death of childbed fever victims by painting the room walls with a large brush and soaking the bed linen in the solution. A one percent solution of calcium acid phosphate, a tablespoonful per hour as medicine, has the double effect of neutralizing the nerve-paralyzing, ammoniacal decay products and of bringing the chemical protein decomposition to a standstill. At the same time, the addition of calcium permits a renewed formation of red blood discs which absorb the air oxygen and by this fact alone create new electricity.

Medical treatment during epidemics should be supported by the use of a solution of 120 grains of *physiological salt water* in one quart (liter) of water, consisting of phosphates, sulfates, hydrochlorides and carbonates of soda and potash, corresponding to the analysis of the blood salts made by Denis. This is the most natural and *safest blood transfusion,* free from any undesirable side effects. Thus new healthy blood serum is formed which by its salt content makes the walls of the arteries conductive for the electric current created by the iron-holding magnetic blood and at the same time protects the blood from putrefaction. Incidentally, tyrosine (cheese) substance is scarcely soluble in cold water, somewhat better in warm water and is very easily-soluble in *salt* water and alkalies such as sodium sulfate-bicarbonate, which also dissolves all bacteria.

Decay and putrefaction appear when the salts secreted with the urine are insufficiently replaced. Thus the rice-eating Hindus and Madagascans have pest and cholera, also the Mecca pilgrims who on their long voyage excrete salty urine yet because of pious fasting and privation do not get sufficient blood salts.

In order to prevent the chemical decomposition of connective tissue as well as of blood and lymph juice which goes along with bacteria and which also takes place in the case of *external injuries* as a consequence of the interrupting of the blood and lymph channels, the main point is to prevent the access of air

which causes oxidation and chemical splitting. *The binding must be very tight.* The wound should be previously cleaned by means of the eminently disinfecting thinned peroxide and then covered with a small oiled patch. In this way the nitrogen combinations become immobile, can no longer decompose chemically and therefore they cannot transfer such decomposition to neighboring substances. Sticking plasters and pitch serve the same purpose. Coopers resort to hot brewer's pitch in the case of wounds, the carpenters hot gelatine glue with just a strip of linen over it, and the bakers bread paste on the point of becoming hard, this thanks to the sticking power of the albumin-gluten-holding wheat flour. In order to resist the putrefying, i. e., the chemical splitting of albumin, no more is needed than a certain degree of immobility.

The mobility of the so-called bacteria is called upon to supply the proof that they are living bodies. Yet one should know that the molecular motion is characteristic of even the smallest piece of dust, a thing you can see if you are pouring chalk powder into spirit. There you see a trembling, a struggling, a swimming, a pushing-away of each other, as if you had in front of you innumerable living things. Precipitated calcium carbonate, talcum powder (magnesium silicate) and numberless other powderlike substances show the same molecular mobility.

Now, let us examine how matters stand as to *urine* which has been exposed two hours to the air. It actually shows real, living microscopic animals, since urine originating in living blood from which it separates, contains among other elements, the flesh base creatine united with phosphoric acid along with chemical remainders of that base, for instance, urea and *ammonium phosphate.* The latter supplies, along with the hydrocarbons of creatine, real *nerve fat,* which is the actual *germ substance* for the entire animal world. In the section *The Chemical History of Creation,* I have made clear how out of the primeval phosphorus-sulfur-cyanogen gas and sea water which contains in dissolved form a solution of chloric and fluoride of potash, soda calcium, iron, manganese and magnesia and silica, enormous quantities of nerve fat and flesh bases were created at the beginning of our planet. In union with the earths mentioned, there was given the indispensable egg substance for living beings, which the then more intense electricity of the atmosphere, by uniting opposite matters through the omnipotence of God, led ultimately to our perfection of today.

That out of *urine,* when concentrated through evaporation and in union with hydrocarbons and minerals contained in sawdust, fleas will be born, is known to people at large, but is still ignored by certain naturalists. Out of evaporated concentrated urine, fleas can develop after a short time, and out of urine which simply has been kept in the air, microscopic small living beings can come, which have nothing at all to do with bacteria and are not originated by bacteria.

Again, all kinds of lichens, mushrooms and fungi are produced by metamorphosis out of vegetable and animal material, but they are not the cause, but the consequence, of chemically-decaying protoplasm. Yet the bacteriologists continue to attribute the cause of infection of wounds to the *Staphylococus aureus.*

Cocci and bacteria are chemical split products of blood gelatine appearing in those cases where the blood lacks the electrifying salts and minerals which protect the blood against decomposition. Direct sun rays prevent the development of bacteria thanks to the electrical influence of the sunlight. Electricity holds together the nitrogenous hydrocarbons, but in proportion to the disappearence of the electricity the animal substance chemically separates, partly forming bacteria, partly forming wound poison and ptomaines.

The ptomaines on the basis of the chemical constitution of the specific poison cadaverin $C_5 H_{14} N_2$ easily allow us to recognize their relationship and origin from the gelatine substance, as cadaverin is a composition of ammonia $N_2 H_6$ with the oxidized hydrocarbon $C_5 H_8$ of leucine. Certain ptomaines

can be crystallized into the shape of bacteria, hence the confusion. These cadaver poisons (ptomaines) are present not only in exterior wounds, but also in the case of childbed fever, abdominal typhus, diphtheria, cholera, etc. In all cases, the cause of their appearance is stagnating blood developing ammonia, which in turn paralyzes the nerve functions and in this way furthers blood stagnation and its poisonous putrefaction.

In acordance with the physiological fact that stagnating blood develops ammonia, Feder found that in the case of spleen gangrene, typhoid fever, consumption and red murrain, the alkaline reaction of the blood increases, while through introducing *fixed alkalies* which are *albumin-binding*, as for instance bicarbonate of soda, a certain resistance against spleen diseases is obtained.

One need not be afraid of the appearance of such decomposed products of the blood gelatine if one cares to maintain the blood with a good supply of soda salts and all other minerals indispensable for healthy blood. Bacteria are parts of the human organism, not cells, but parts of the latter, created upon the decay of the cell and, according to the character of the process of decay of the tissue, the bacteria present themselves in different forms.

BACTERIA, HOW THEY ORIGINATE

Bacteria, How They Originate. Pathologists have, in all diseases having to do with decomposition of the blood sap, found bacteria. One speaks of cholera bacteria, tuberculosis bacteria, typhoid fever bacteria and so on. There is not the slightest doubt that little rods or needles (in Latin bacilli, in Greek bacteria) really do exist, but their true significance is the important thing.

Some claim that these bacteria are living and that they multiply by creating offspring and that during their existence they perspire poisonous juices whereby disease and death are caused. Others, and I belong to those look at this matter in a totally different way. They consider the bacteria as chemical split products originating in the blood gelatine. According to this, the rod-like bacteria are nothing else but short crystal needles neither plant nor animal, provided with neither digestive nor reproductive organs nor with sweat pores. They are subject to disappearance, but are not able to grow through assimilation of food, nor are they able to reproduce themselves.

In order to solve this contradiction there is but one way and that is to ascertain out of what chemical elements the main substance of the bacteria consists of. So far no one has trodden this path and no one could have chosen it, because it was impossible to collect bacteria in a large enough quantity for a chemical analysis. They are too small to be seized by tweezers, in fact they are invisible. To be seen, a powerful microscope is needed.

Since that time I have produced bacteria by a chemical process in billions which could be weighed by the ounce, so now I am able to give some reliable data on the chemical nature of at least one kind of bacteria. The time required to produce these bacteria successfully was rather extended. Many trials failed. My studies led me through the following stages: gelatine, blood gelatine, blood discs, blood serum, bile, urea, uric acid, hippuric acid, leucine, glycine, tyrosine, benzoic acid. Briefly, this is how bacteria can be produced:

One neutralizes ammonium carbonate dissolved in water with benzoic acid, pours the concentrated and filtered solution into a porcelain bowl, while adding to it the concentrated solution of an equal quantity of calcium acetate, stirring the whole with a glass rod. Thus a thick mush is formed from which, after standing a short time, billions of bacteria separate themselves, with the appearance of those painted in a book.

The chemical nature of these bacteria is clear. They represent the minutest molecules of calcium benzoate and therefore they show under the microscope ab-

solutely equal dimensions. The fluid, in which they float and from which they can be separated, contains ammonium acetate. This process is one of the most ordinary chemical changes.

Now, one has a right to ask: What has benzoic acid, acetic acid, calcium and ammonia to do with human blood? The answer is: Very much! All these factors one discovers together in diseased blood. First, all red blood corpuscles, sick and healthy ones, contain calcium; second, in certain cases of anemia, acid is found in the blood; and, third, glycocol-benzoate of ammonia, a natural oxidation product of blood gelatine due to *breathing* is found in the urine of all people, especially in that of vegetarians, and is a natural excretion product of the blood, brought about by the action of the kidneys.

As calcium benzoate is rather difficult to dissolve in pure water, how much more difficult will it separate from sticky blood which has been thickened due to loss of water by perspiration or by the dry summer heat which causes by far, most epidemics, or by the watery stool during colds in the autumn. Now when in such cases bacteria are found in the blood they are beyond the slightest doubt not the cause, but the *result* of a pathological condition.

That with these bacteria, attached to the chemically-decomposed blood fluid through *vaccination,* a similar decomposing process can be transmitted to other blood, confirms the chemical fact that the nitrogenous blood gelatine, thanks to the easy mobility and shifting ability of its hydrocarbon groups, can readily be drawn into a similar decomposing process. Therefore, the infecting ability of putrid blood and suppurative pus by means of vaccination is a proven fact. What has to be found out, then, is merely the following:

1) What favors the tendency of blood gelatine to decay?

2) By what substance suitable to healthy blood can we prevent such decomposition of the blood?

I would like to mention that I have succeeded in letting disappear all bacteria called into life by the aforementioned formula, by adding a solution of *sodium bicarbonate.* In this way, due to a new chemical change with calcium benzoate, a solution of sodium benzoate and calcium bicarbonate was produced. This dissolving capacity of *soda* is of *greatest importance* in the orderly chemical functions of our organism. (See section *Cancer.*)

Pathology of Disturbances of Health

CHEMICAL LIGHT ON FOUR CLASSIC DISEASES

1) Climatic fever, cholera, or the diseases of the blood vessel system.

2) Smallpox, or the diseases of the lymphatic system.

3) Consumption, or the diseases of the connective tissue.

4) Epilepsy, or the diseases of the nervous system.

Having considered the effects of *cool air* in respiration and the electric tensional action of *salts* and *earthy bases,* we shall now acquire a more accurate knowledge of the chemical processes which cause the dissolution of the human body when there is a lack of the aforementioned three conditions. When we have grasped the chemical laws by dealing with these classic diseases, we shall have little difficulty in discovering the remedies for the *other ailments,* which are only lesser varieties of these four diseases.

Climatic Fever (Cholera). Physiological chemistry teaches us that the final product of combustion of our bodily substance with the oxygen we breathe is *dehydrated ammonium carbonate*

$CO, N_2 H_4 = CO\left|O\begin{matrix}H\\H\end{matrix}\right|\begin{matrix}HHN\\HHN\end{matrix}$ to which the name of urea has been given as it was

first discovered as a salty ash in the urine. Thus it is plain that this same urea, combined with combustible substances, must form a basis of our body tissues, and this conclusion is supported by facts.

The combustible materials which in combination with urea go to form both our muscles and the gelatine of our connective tissue are cyanogen CN and its hydrogen compound hydrocyanic acid HCN, and hydrocarbon CHH. In certain compounds the dehydrated carbonate of ammonia (urea) exists as such or in the isomeric form of ammonium cyanate COHN, NHHH, for example in ammonium urate.

In other flesh compounds, for instance, in xanthine, sarkin, and creatine, it is recognizable in unoxidized condition as gelatine sugar or glycoprotein CHH COO NHHH. Owing to the occurrence of tissue in regular layers this glycoprotein must be regarded as existing in masses; thus the fact that urea is produced from 2 equivalents of glycoprotein is explicable from the regular oxidation of the latter with 6 oxygen. In this case, one double molecule of glycoprotein gives rise to 1 urea, 3 carbon dioxide, and 3 water.

Sarkin, the basis of flesh, gives rise in complete oxidation due to normal respiration to 1 urea, 4 carbon dioxide, 2 water, and 3 nitrogen. These four products of oxidation are regularly found in venous blood, so that a good deal of the nitrogen in the exhaled air is not due to the nitrogen of the air inhaled, but to the oxidation of tissue in the body itself.

Now, if an incomplete and insufficient combustion takes place through lack of oxygen, it is plain that some half-burnt products of the combustible substance are left, analogous to the combustion of wood in the stove leaving charcoal when the air supply is reduced. Similar half-burnt compounds produced in our bodies by insufficient breathing are the *cyanogen compounds* which are oxidized with more difficulty than the hydrocarbons. But unburnt cyanogen cannot be detected in the blood as such, since it instantly combines with the blood iron to form Prussian blue. Thus, small quantities of cyanogen are rendered harmless. Only when the blood iron has in this way been largely used up, does the oxygen absorption decrease and the "cyanosis" begins with the difficulty of breathing, the oppression of the heart and general feeling of weakness, as it necessarily must since the feeling of strength depends on oxygen respiration.

The amount of oxygen needed to produce a certain amount of energy or work may be estimated with accuracy. Whether we consider the hydrocarbons contained in creatine, gelatine, or fat as combustibles, it follows that about 160 grams of hydrocarbons are consumed during a day's work in a temperate climate. For this quantity nearly three-and-a-half times as much oxygen in weight are required, i. e., 560 grams, to oxidize it into carbon dioxide and water; such a quantity of oxygen is equivalent to 5000 liters of air at freezing winter temperature. Therefore, the 160 grams of combustible food must be replaced daily and also the minerals together with which the food was combined must be replaced, to produce a similar amount of energy the next day.

If we work in the tropics with its hot, thin air, perhaps ten times as thin as cold winter air, it is clear that neither the replacement of food nor the respiration of air keeps pace with the loss, since the digestive processes need an adequate supply of oxygen for the abdominal nerves. Therefore, the hot, rarified and humid air in the tropics causes the sudden loss of energy called climatic fever.

According to Professor Grimaldi's experiments *water vapor* absorbs nearly 8000 times as much heat as dry air. Since the air on hot coasts and in river valleys is laden with moisture, the heat and the moisture together *carry off* our bodily *electricity* which as we have learned holds our body substance together, while on the other hand it decreases the proportion of oxygen in the air.

Parallel with the decreased amount of oxygen inhaled, carbon dioxide accumulates in the blood. This is due to the fact that exhalation and inhalation stand in a certain, fixed relationship to one an-

other. If the inhalation is feeble the exhalation will be feeble too, since the lungs lobes always retain a certain amount of air. The longer the inhaled air remains in the lungs without being expelled by fresh air, the more fully and completely it loses its oxygen and the more the carbon dioxide, produced by the combustion of the fatty and gelatinous substances, accumulates in the blood.

Since the carbon dioxide which has formed in the blood expands in accordance with the thin air outside, like gas inside a balloon expands as it rises, it follows that the roomy cranial veins *(Sinus longitudinalis superior, Sinus rectus, Sinus cavernosus, Sinus petrosus superior and inferior, Sinus transversus and occipitalis)* suffer most appreciably at first. Hence, pains in the *head,* for the brain substance is everywhere pressed upon by the expanding carbon dioxide and thus the circulation in the fine capillaries is impaired.

The same fate befalls the venous plexuses of the spinal column, likewise the systems of the *Vena azygos* and *hemiazygos* which follow the course of the spinal column, hence pains in the *back.* The large veins of the thighs *(Vena cruralis)* also participate therein, hence pains in the loins. The system of the portal veins is of course also affected and where the abdominal regions affected are connected with branches of the cerebral nervous system (vagus), as is the case in the stomach, this manifests itself in *oppression of the stomach.* Through the lack of oxygen in the blood its circulation is disturbed and stagnates in the capillaries, which explains the pains in the *limbs,* first in one place and then in another.

Further, the inadequate supply of oxygen in the blood causes the *nerve fibrils,* which only perform their functions in proportion to the amount of their substance consumed, to become gradually paralyzed. Neither the cardiac plexus nor the intestinal nerves receive enough oxygenated blood. Hence, on the one hand, *weaker pulse* and, on the other, a diminished secretion of the digestive juices (gastric, intestinal and pancreatic). The result is *loss of appetite.* And since nothing is eaten the absorption of chyle also ceases. The liver, indeed, still continues to produce bile from the blood of the portal vein, but since no food is eaten there is no use for the bile in the production of chyle, thus it enters the duodenum, passes into the stomach and is thrown up. And because no fresh lymph is formed it gives rise to increasing weakness, dejection and exhaustion.

The kidney nerves (the renal plexus) also cease to act from want of stimulating oxygenated blood, so the excretion of *urine ceases.* Consequently, the urea remaining in the blood takes up water and is changed into ammonium carbonate, the direct effect of which is to paralyze the nerves, hence, *prostration.*

The turning yellow of the skin is explained as follows: The ammonia and the ammonium carbonate arising from the decomposition of urea attract water and this water is drawn from the albumin of the blood. The cyanogen liberated from the muscles acts in the same way. A Berlin postman, who was poisoned with potassium cyanate given him in a glass of spirits, staggered downstairs, crying: "For God's sake, water." His murderer, who, when he thought he was discovered, took the same poison, uttered the same exclamation. So parching is the effect of the water-attracting cyanogen!

Now, let us examine what chemical metamorphosis gelatine undergoes when imperfectly oxidized and, in addition, is chemically dehydrated. That very poisonous products may be formed from gelatine by the presence of putrid matter under exclusion of air is clearly shown by Robert Koch's lymph (tuberculin) which is made with the exclusion of air. We will at once explain how this is possible.

Gelatine may be decomposed by sulfuric acid into leucine and glycine. (See *The Daily Loss of Blood Salts.)* These two components, upon being completely oxidized by 21 parts oxygen produce carbon dioxide, water and nitrogen. When, however, instead of this only 3 oxygen come into action, producing 5 water and 1 carbon dioxide, the result is the formation of prussic acid and a yellow

aniline oil (the latter is also produced by the dry distillation of bones), which also contain gelatine. The calculation is as follows:

Leucine	=	$C_6 H_{13} N O_2$
Glycine	=	$C_2 H_5 N O_2$
Total		$C_8 H_{18} N_2 O_4$
Plus 3 oxygen		O_3
		$C_8 H_{18} N_2 O_7$
Deduct 5 water and 1 carbon dioxide	=	$C H_{10} O_7$
Remainder		$C_7 H_8 N_2$

This remainder contains the elements of prussic acid HCN and aniline oil $C_9 H_7 N$. Aniline oil colors the skin intensely yellow, while prussic acid turns the iron of the blood into blue-black Prussian blue.

This dark black product, which is incapable of chemical combination with oxygen, is visible through the fine capillaries of the tongue, the ephithelium of which is full of small vessels. Furthermore, *trembling* of the *tongue* in speaking is due to want of oxygenated blood.

The formation of the dark blue ferricyanide (Prussian blue) also occurs in the capillaries of the mucous membrane of the stomach and intestines; from the pores of these capillaries the carbon dioxide, which has accumulated in excess in the blood, issues forth in gaseous form carrying some black blood with it. Hence, the vomiting from the stomach of black masses and the unconscious mechanical passing of black masses of blood from the intestinal canal. The tarlike form of the blood is caused by prussic acid and is also characteristic of other cases of poisoning by prussic acid.

As the amount of active oxygen grows less, the nerves of the skin grow cold, and hearing, seeing and thinking become confused; for the brain also needs oxygenated blood to perform its functions normally. Finally, the patient lapses into apathy and death ensues.

People *spared* from the *epidemic* are those who, during the hot season, visit the neighboring mountains which the heavy moisture-laden air of the plains does not reach. Owing to nocturnal radiation they enjoy a nocturnal *change of temperature* from which *electricity* is regularly formed. Correspondingly, the epidemic dies out as soon as a thunderstorm breaks in upon the steady heat which has lasted for months, since this provides the atmosphere with fresh electricity which then passes over into the human organism.

Such a state of affairs shows us plainly enough the course that therapeutics ought to pursue to successfully combat *yellow fever*. Among the peculiar symptoms of the disease due to the influence of weather and climate are, especially: dyspepsia, dysentery, vomiting and diarrhea, jaundice and undulant fever. This whole cycle of phenomena is unmistakably characterized as caused by paralysis of the intestinal nerves which regulate the functions of the various glands. This paralysis is physiologically due to *want* of oxygen in the blood and to its being replaced by carbon dioxide and ammonia. In such an atmosphere the nerve fat is not oxidizable, just as a lighted candle will not continue to burn in it.

In marshy districts where dense vapor pressed on to the ground; in fortresses surrounded by moats containing stagnant water; in plains near waters with mountains behind them impeding the movement and dissipation of the exhalations; and, in tropical regions during the wet season or when swarms of mosquitos and flies hatched from the marshes fill the air, the atmosphere is as poor in oxygen as it is in electricity. As already pointed out, the layer of vapor naturally presses upwards the dry electric layers of the atmosphere and raises them above itself. It is due to this fact that both mountaineers and those dwelling in the upper stories of modern stone buildings are more secure from diseases than those living on the ground floor who are exposed to the effect of the moist ground which conducts electricity away.

The loss of electricity originally affects only the nerves of the skin, since electricity naturally collects on the surface of the body whence it radiates; but since the nerve material forms an inte-

gral system, the condition of the *external* nerves is soon communicated to the nerve material of the *inner* surfaces including all the *glandular* organs. The principal of these is the inseparable quartet — liver, stomach, pancreas and spleen — upon which digestion and *nutrition* depend. In the spleen, where the arterial capillaries are separated from the venous capillaries, the electroscopic phenomenon of shivering takes place due to the stoppage of the circulation in the spleen. And it is followed by various processes of decomposition which are partially to be attributed to the *ammoniacal disintegration* of the blood clot which accumulates in the spleen, which liberates a certain amount of heat which we feel as fever heat.

Even without a rainy season and without the presence of marshes, but merely through uniform hot weather, even in dry high lands, fever may occur. During the hot period of the year our organism attempts to equalize the external with the internal temperature by evaporation which absorbs heat, sweat secreting through all the pores of the skin. Yet perspiration is antagonistic to the excretion of urine, the one excludes the other. And when the excretion of urine ceases or is impeded, a certain proportion of urea remains in the blood and separates into ammonium carbonate with these consequences: the absorption of water, the formation of prussic acid, the killing of the hemoglobin which absorbs oxygen (*cyanosis*), the swelling of the connective tissues through the secreted water (*dropsy*) and the aggregation of the dying blood corpuscles in the spleen causing it to swell. Bloating, paleness of the face and apathy go hand in hand and steadily gain ground. Such are the characteristics of marsh fever (*malaria*) which, in contradistinction to yellow fever, might be called white fever.

Indian Cholera. Yellow fever is confined to the equatorial regions, replete with watery vapors, where the mountain ranges because of the rotation of the earth from west to east impede the escape of the water vapors that have been formed under the equatorial sun. For instance, it rages along the flat coasts of the Gulf of Mexico up into the broad valley of the Mississippi and again along the east coast of Noth America as far north as Philadelphia where, due to the revolution of the earth, the vapors are banked up against the Rocky Mountains, the Appalachian and the Allegheny Mountains all of which obstruct the escape of the heavy water vapors. Similar conditions exist in Asia along the coasts of the Bay of Bengal where the high mountains of Tibet present an insurmountable wall to the vapors rising from the Indian Ocean — here we encounter Indian cholera.

The causes of these climatic affections are always to be found in *hot air poor in oxygen* on one hand and, on the other, in heavy *water vapor* in the absence of thunderstorms that would precipitate moisture. In our latitudes the moist *autumn* air which carries off electricity lying heavy on the ground may also produce cholera. This native cholera (*Cholera nostras*) only differs from the Indian in being a milder variety, just as the *bilious fever* of our climates differs from the tropical yellow fever only with respect to the intensity and rapid development of the latter.

Our dependence on atmospheric conditions shows itself under greatly varying circumstances. For example, people suffer from headache and sleeplessness for 24 hours before the "foehn" (a hot south wind in Switzerland) arrives. In damp and musty dwellings we fall prey to a crick in the neck and rheumatism, and foggy air produces epidemic catarrh (Spanish influenza). On the other hand, yellow fever cannot reach 3000 feet above sea level since there the peculiar electricity of air in motion is imparted to our bodies. The truth of this theory is shown even in the case of lifeless flesh. Thus, while on the coast of Brazil meat must be cooked or roasted on the day the animal is killed to prevent its spoiling and for the same reason human corpses must be buried on the day of death, meat hung out to dry on the breezy high points of the Grison Swiss Alps or the Cordilleras never decompose at all.

We all are healthier in a *dry* atmos-

phere on a sandy soil which *holds electricity* than we are in humid regions which carry off the proper electricity from our bodies.

When we study the case of the city of Cairo, situated in the flat coastal area of the Mediterranean and deprived of electricity as it is under certain weather conditions and in certain years by the basin of the Red Sea which being enclosed by mountainous ridges collects a mass of vapor, thus giving rise to cholera; and when further we see on the shores of the Bay of Bengal, where the conditions are still more unfavourable, both plague and cholera breaking out, there is really no need to search with the microscope for a new "bacillus or bacteria or virus" as the cause of cholera and to steam from Alexandria to India for the purpose of determining whether the Alexandrian bacteria can be transmitted by vaccine to Indian apes.

There can be no doubt about the possibility of such infection, like in a whole tub full of dough, fermentation can be started by just a handful of leaven, when the temperature is sufficiently high.

As in the case of yellow fever, cholera disappears as soon as there is an abundant fall of rain. The explanation is that the water in passing from a gaseous to a liquid state sets free considerable quantities of electricity, which are transmitted to the air and to the people living in it. The reverse of this apparently produces the same effect, since the *evaporation* of large quantities of water in hot air consumes a great amount of heat. The consequent cooling of the atmosphere is followed by the appearance of electricity since the latter is due to *variations in temperature.*

It is obvious that in the same way as the glands secrete *different* substances from the same material (the blood), so modified factors active in earth, air and water give rise to various forms of decomposition, impressing a particular character on ailments. It is important whether a certain degree of intense atmospheric heat extends over seven or over fourteen days. A striking example is the production of electric light. When the velocity of a dynamo falls below a certain point *no* electric light is produced. It is only when the rate of rotation reaches a certain speed that the effect between electricity and magnetism or the transition from one into the other is reduced to such high frequency that light may be born therefrom. This analogy enables us to understand how the faster rotation in the equatorial regions causes a different disposition of our organism than prevailing in a northern latitude of, say, 35°.

We have thus seen that the specific disease known as cholera is characterized by a decomposition of the blood into watery lymph and fibrous tissue, since our whole organism is capable of a threefold division into nerve substance, fluid lymph and hard tissues (bone, cartilage and fibrin).

Owing to the coagulation of the fibrin in the fluids of the tissues the chemically detached lymph is *mechanically forced out* through the walls of the stomach and intestines, giving rise to diarrhea and vomiting. Of this *contractile* power of the coagulation of fibrin there are several proofs. Thus, for instance, we are aware that in all corpses the lower jaw first opens, but gradually it closes, a mechanical effect of the contraction of the facial muscles. Again, it has happened a number of times that a very busy doctor during a cholera epidemic has signed the death certificate as soon as the patient's heart ceased beating and then left. As soon as he got home, however, one of the relatives of the deceased has rushed in all out of breath and cried: "O, doctor, our father has come to life and lifts up his arm and moves his fingers!"

To understand this strange phenomenon we must remember that in any dead body, without exception when the muscles of the arm are exposed and the proper tendons are pulled, the fingers can be made to move separately or all together like piano keys. This shows that the bending or straightening of the fingers and arm may take place *without* the action of the will which during life effects the muscular contraction.

Because in cholera corpses, even after the stopping of the heart, the respiratory

organs and the brain functions, jerks of the tendons still occur as above described, it is plain that a continuing separation of lymph (serum) and fibrin is going on, since fibrin only when produced in large quantity can by its coagulation effect a change of volume and thus a contraction in a mechanical manner. Also, cramps in the calves by which the feet are involuntarily drawn up to the body, the clammy perspiration pressed out from the pores contains albumin, i.e., lymph, the small amounts of urine secreted contain albumin as the blood becomes so thick it no longer can give up water and the thick blood has difficulty to be set in motion by the heart - all this is due to the same cause: The lymph is forced out of all the serous membranes set with glands, in the same way as it is from the sweat glands on the surface of the body.

There is nothing which sheds so much light on the real process in cholera as this hitherto not sufficiently noticed post mortem movement of the limbs. All these symptoms are rendered comprehensible from the accumulation of *fibrin* and the loss of watery *lymph*.

Genuine blood poisoning. One would think that in proportion as the amount of albumin in the blood decreases, the vital force would sink too, somewhat as it is in animals slaughtered by draining their blood. Yet this explanation is not complete, because in ordinary cases of loss of blood, e. g., from wounds on the battlefield, the propelling power of the heart is diminished by a sort of automatic regulation. The blood flowing slower and slower from the wound coagulates, the wound closes, the blood being renewed and increased from the lymph, and recovery takes place. In cholera *nothing* of this kind takes place. On the contrary, we also have to deal with a genuine *blood poisoning*. This is indicated by the blue color of lips and hands, due to prussiate of iron which leads to no other conclusion than that it is a poisoning due to prussic acid (ferric ferrocyanide) spontaneously generated by a chemical disintegration of albumin, simultaneously with the decomposition of the albumin of the blood into lymph and fibrin.

Certain occurences in times of cholera when persons hitherto healthy, suddenly fall dead in the street, can only be explained as the result of rapid *internal generation of prussic acid* due to the effect of a peculiar atmospheric electricity.

To explain how comparatively small amounts of prussic acid can destroy the system I wish to draw attention to two facts of similar kind. The one relates to a much-used product of albumin which is formed by allowing barley grains to sprout, when they divide their albumin into two unequal parts — one *fibrin* rich in glycoprotein to form the root, and the other a sweet *lymph* containing but a small amount of gelatine sugar, but very rich in grape sugar. This sweet substance is termed *diastase*. At a certain temperature slightly above that of our blood, diastase has the property of converting quite astounding quantities of starch, previously cooked into a paste, into the same sugary substance contained in barley malt, namely into *maltose*. Thus, we may assume that the mere approach of the diastase by its electrochemical opposition to amylum (starch) effects the decomposition of the latter into sugar by the absorption of water. After the decomposition fresh portions of starch come into contact with the diastase and share the same fate. The only limit to this action is the destruction of the diastase character by the oxygen of the air.

We may assume the same process in regard to prussic acid which on combining with albumin acquires the property of converting considerable quantities of blood albumin into similar prussic-acid albumin, unless a limit is set to this action by the oxygen of the arterial blood. This latter is generally the reason why small amounts of prussic acid are not fatal. In this way the process by which a substance can continue to decompose without other means than the constant application of heat becomes comprehensible.

All these facts, I think, prove that atmospheric influences first cause the appearance of cholera. Now a few words

on superstitious opinions.

It has been observed that cholera and yellow fever only spread as far as a man can walk in one day, so it was concluded that cholera is transferable from one person to another. The high roads are usually built as level as possible, i. e., they are constructed in the valleys. And in the valleys as a rule one finds rivers, the vapors of which, during hot summers, *conduct off electricity*. This is the reason why yellow fever extends all along the flat valley of the Mississippi from New Orleans to St. Louis. And the valley of the Ganges from Delhi to Calcutta forms an equally favourable district for cholera.

It is *no* superstition that dread of infection disposes to cholera, for all emotions use up electricity and reduce our resistance power. Therefore, it is advisable that cholera patients be removed to a hospital so that their families do not become sick through fear and horror.

Smallpox, or Diseases of the Lymphatic System. In cases of cholera and climatic fever we find that death results from a more or less extensive disintegration of stagnating *blood*, but smallpox has its origin in the contents of the lymphatic system, i. e., in the *lymph*.

The lymph is intended to supply blood and nerves with fresh material, to replace what has been used up. In the beginning the lymph is sucked up from the intestines in the form of chyle (a milky mixture of bile, fat and food extract), collected by a number of fine canals called *Ductus thoracicus* which pass up along the spinal column and empty into the venous system near where the left jugular vein joins the left subsclavian vein. The base of the lymphatic canal is widened near the second and third lumbar vertebrae into the *Receptaculum chyli* from which pass two branches, each one of which dissolves into a netform plexus from which smaller vessels pass to supply both sides of the *pelvis* and the thighs with fresh material.

A similar duty is performed by the upper part of the main lymph canal. This sends branches on one side to the *left* and *lower* portion of the *thorax* and to the left half of the *neck* and *head* together with the left arm. On the other side it branches to the *right upper* half of the thorax, the *right* half of the neck, the right half of the head and the right arm. The lymph that is not used up in this course passes into the blood stream between the *right* jugular and the right subclavian veins. This anatomical relationship throws considerable light on the regions where the smallpox pustules appear.

The course of the thoracic duct between the aorta and the *Vena azygos* along the spinal column and consequently along the spinal cord, enables us to see both the blood circulation and the electric current passing through the nerve trunks produce an effect on the progression of the lymph; for whatever acts *side by side* also acts reciprocally.

A stagnation in the movement of the lymph accordingly takes place when the blood is deficient in iron and salts which act electrically on the nerve trunks. Further, we must consider that the amount of alkaline and earthy salts in the blood normally only reaches 1 percent, whereas the lymph extracted from the chyme normally is richer, reaching 1½ percent. So it is clear that when the lymph salt is unduly diminished and sinks below the percentage of that in the *blood*, it becomes physically very difficult for the lymph to empty itself into the blood since a lighter liquid will not sink in a heavier one. The lymph is thus held back and more surely gives rise to chemical disintegration as this weak lymph is not sufficiently protected by salts against putrefaction.

In agreement with the explanation of the origin of smallpox we find that it particularly attacks children that are given *diluted cow's* milk instead of natural mother's milk, as the amount of alkaline and earthy salts contained in the former often falls short of three parts in 1000 as against ten parts in 1000 in mother's milk, since cow's milk has on the average, even when undiluted, only six to seven parts per 1000. This deficiency in salts must under all circumstances be made good when cow's milk is used for infants. That the

lymphatic system is in reality the seat of the disease, is fully shown by the whole course it pursues.

The stagnation first becomes perceptible near where the lymph should enter into the blood circulation, namely, in the region of the *throat* and the adjoining regions of the *face* and *breast* where numerous lymphatic glands are located. Here the first pustules appear emptying the lymph outside, because the blood has no use for such powerless lymph. Later the pustules also appear on the abdomen, the arms and the legs. The characteristic pains in the pelvis, loins and back point out the thoracic duct as the seat of the evil since it passes along the spinal column sending branches to the pelvis and thighs.

Then the disease progresses into the serous membrane of the brain and the serous pleura which convey lymph, which fact is explained by the anastomosis of the lymphatics which penetrate all the tissues of the system forming a complete and united network. Even blindness is often produced by smallpox, showing that the disease extends to all tissues conveying lymph as it finally extends even to the vitreous humor of the eye, which, with the exception of some minute membranes slightly gelatinous, consists of pure lymph.

Cholera and cholera morbus originating in the blood, which in a few minutes courses through the whole system, develop with great rapidity; on the other hand, smallpox, originating in the system of lymphatic tubes, makes a much less rapid progress, corresponding to the flow of the lymph which is slow because it is impeded by innumerable valves, requiring even in a normal state twelve hours to complete the cycle. Although the development of the disease takes place in the lymphatic system, blood and nerves nevertheless participate in it very considerably.

Inasmuch as pains in the lumbar region and along the back precede the characteristic signs of disturbed digestion (pains in the stomach, nausea, vomiting, coated tongue, etc.), it would appear that the *nervous* system and, indeed, the vagus nerve are the first affected. As, however, the proper action of the vagus nerve depends on the oxygenation of the blood we are again brought to regard the constitution of the *blood* and its *stagnation* as the original cause. And this is indicated also by the sleeplessness and shivering which invariably accompany *impeded circulation* and which precede the disturbance of the digestion. Such disturbances in the circulation may doubtless be partly due to atmospheric influences, so that we must also regard smallpox as depending on certain weather conditions — a fact which is quite patent in the case of *black pox* in which decomposition of the blood is involved. The *foot-and mouth* disease of cattle is similar to the human smallpox.

In every case of smallpox insufficient electricity in the nerves and insufficient oxygen in the blood are contributing causes of the infectious chemical disintegration of the lymph, and the curative treatment must above all take these things into consideration.

Consumption (Tuberculosis). In order to understand the chemistry of consumption, I think it necessary to point out the principal anatomic conditions.

The tissue of healthy lungs is soft, sponge-like and yields, under the pressure of fingers, a peculiar crepitating sound. When such pressure is removed, the lungs resume their original volume owing to their natural elasticity. This *elasticity* is very noticeable; it enables the lungs to take up more space when inhaling and to contract again when exhaling. These movements are followed by the thorax, which in turn is put in motion by the strong sinewy diaphragm which forms the base and closure of the thorax.

It is plain that the elastic expansion and contraction of the lungs can only take place normally so long as virgorous automatically-acting elastic tissue, of which *gelatine* forms the basis, is available. When the gelatine, which like all other bodily substances is subject to consumption and change, is not renewed by nutrition, the elasticity of the lungs is diminished. Therefore, we find the lungs of a consumptive patient deficient in

elastic gelatine, lumpy and contracted, instead of being expanded like a sponge and when pressed with the finger, the characteristic crepitating sound of healthy lungs is no longer noticeable.

It must be remembered that besides the lungs, all other organs which contain tendinous fibers or gelatinous tissue as an essential part (spleen, kidneys, intestines, peritoneum, cartilage and bones) suffer a simultaneous decrease in the amount of elastic gelatine. This fact should not be surprising when we understand the gelatine as a connected, cementing mass forms the basis of our whole body structure. It is therefore meaningless to attempt to diagnose a particular kind of "consumption" according to the organs affected.

In order to know the chemical nature of the tough mucus (sputum) emitted from the air passages of consumptives, we must also consider the skin which lines these passages of the lungs and the blood vessels connected with them.

This covering skin (membrane) extending from the vocal chords to the finest bronchial ramifications is covered with ciliated epithelial cells, which are to be regarded as the terminal branches of the pulmonary nerve. This epithelial lining membrane gives way in certain regions, namely where the ramifications decrease in diameter to 0.03 millimeter, to ordinary nerveless, flat-celled ephithelium formed of gelatine, which continues beyond the bulbar alveoli. The inner surface of the alveoli is penetrated by capillary blood vessels and the alveoli themselves are separated from one another by elastic, gelatinous connective tissue, respectively, they are united with one another.

This anatomical presentation shows that capillary blood vessels, gelatinous, conective tissue and nerve substance in the form of ciliated ephitelium are, in the region of the alveoli, found close together. While the tubercles are situated in the parenchyma which is formed by the conective tissue surrounding the alveoli, the sputa, on the contrary, originate in the lung passages.

Tubercles and sputa are the two products of decomposing lung substance and must be considered separately if their chemical constitution is to be understood. We will therefore first describe the peculiar chemical decomposition of the gelatinous connective lung tissue called:

Tubercles. All protoplasm contains sugar. It may be present as such, or in a dehydrated form as a glucoside or as chemical fragments of the sugar molecule with or without ammonia. Lactic acid is a very common decomposition product of sugar and has quite different properties from acetic acid, for example. Lactic acid COO CHH CHH HHO contains 1 carbon dioxide, 1 water and 2 hydrocarbons, conferring the so-called aldehyde or oxygen-consuming (reducing) character to the compound, whereas acetic acid CHH CHH OO presents quite opposite characteristics, with 2 hydrocarbons the same as the lactic acid, yet saturated by 2 atoms oxygen.

The 2 atoms oxygen confer a positive electrifying power on the acetic acid, whose power as we know holds the chemical constituents of the gelatine substance together. On the other hand lactic acid, which is a product of fermentation, absorbs electricity with the result that it tends to cause other material to undergo a similar chemical decomposition. If 2 atoms oxygen are combined with 1 lactic acid and 1 carbon dioxide, separating 1 water, it would thereby be converted into acetic acid. Thus acetic acid (vinegar) is saturated with oxygen and lactic acid is hungering for more oxygen. This *hunger for oxygen* by lactic acid plays an important role in the disease called tuberculosis, the significance of which we will study more closely after having introduced certain substances which occur in our organism as derivatives of lactic acid and so of sugar.

1. *Sarcosin* CHH CHH COO NHHH is sugar which by combination with 2 ammonia and separation of 2 water has become 2 sarcosin. This substance is not found in an isolated form, but occurs in urea as the basis of flesh *creatine,* and in dehydrated sugar as hippuric acid

2. *Hippuric acid* C_6 H_4 O_2 + CHH CHH COO, NHHH minus HHO is evidently a combination of 3 molecules

sugar with 2 ammonia, separating 5 water and splitting into 2 hippuric acid.

3. *Tyrosine* $C_9 H_{11} NO_3$. According to its formula,. tyrosine may be regarded as the basis of hippuric acid $C_9 H_9 NO_3$, being formed from tyrosine by the addition of 1 atom oxygen and the separation of 1 water. It is the oxidation product of $C_6 H_{12}$ with 2(NHHH COO). In this group the material for sarcosin is already recognizable and sarcosin itself is contained in tyrosine. Similarly, there is recognizable therein the possibility of a grouping into leucine $C_5 H_{10}$, COO NHHH, also that the regular oxidation products of gelatine are the three substances leucine, tyrosine and urea, in which the union of 2 parts gelatine with 2 oxygen form the bases. The tasteless gelatine resulting from the combination of sugar and ammonia is most closely related to gum arabic, which consists of sugar and calcium.

Under such circumstances, namely, since sugar is the basis of gelatine, the occurrence of lactic acid as a product of decomposition of the gelatinous connective tissue is not surprising. And when lactic acid has once been formed in the tissue as a result of *imperfect respiration,* a second reason for the formation of tyrosine is then supplied, for the lactic acid combines with the ammonia of the leucine to form sarcosin, while the rest of the leucine $C_6 H_{10} O_2$ imperfectly oxidized after separating water and in the form of $C_6 H_4 O$ combines with the sarcosin to form tyrosine. That this is the case, I have proved chemically by allowing commercial gelatine dissolved in concentrated lactic acid to stand for some months. One day the characteristic "tubercles" crystallized as tyrosine were found at the bottom of the glass jar.

The occurrence of tyrosine in anatomical preparation of flesh preserved for years in diluted alcohol is to be attributed to a similar process. The weak alcohol prevents a rapid oxidation of the flesh and the restricted access of oxygen causes the lactic acid to split off, producing tyrosine. A similar process also takes place in the stomach, due to the formic acid contained in the gastric juice which, possessing the character of the aldehydes which consume oxygen and assisted by the blood temperature, in a short time causes the albuminous substance present to disintegrate into leucine, tyrosine and urea.

Everywhere throughout the body gelatine exists, and its chemical disintegration into tyrosine (forming tubercles) may take place whenever an abundant supply of oxygen is lacking. It is on this account that young people readily fall prey to consumption if they are confined to heated rooms and have too little exercise in the open air, similar to the apes in zoological gardens. A similar fate befalls the Eskimos who are brought to warm climates to be exhibited. Instead of the cool, concentrated pure polar air to which they are accustomed, they are confined in heated air which is still further vitiated by the presence of many spectators.

It is clear that since breathing is equivalent to a chemical combustion process we must take care that the combustion is *complete.* No half-burnt pieces must be left along the way. Thus in the healing process of tuberculosis it is important, that the hindering tyrosine $C_9 H_{11} NO_3$ becomes oxidized into hippuric acid $C_9 H_9 NO_3$, which is *soluble* in the blood *salts* and, by the oxygen absorption of the circulating blood, becomes dissolved and is secreted by the kidneys. Such a regenerative process often takes place through the healing power of Nature when the patient is given wholesome food rich in *iron, calcium, soda and sulfur* and lives in cool, dust-free air. Thus the cheesy, abnormal growths (tubercles) may be caused to disappear completely, leaving only harmless holes "cavernae" behind. This chemical explanation deprives the long-obscure origin of the tubercles (meaning little knobs) of their mysterious and terrifying element.

Sputum and the chemical constitution of the tough expectoration. Nerve fat (lecithin) when boiled with an alkaline substance (e. g., water of baryta) gives rise to various products of decomposition, namely, the so-called glycerin-phosphoric acid (a union of propionic and phosphoric acids), stearic acid $C_{18} H_{36} O_2$,

oleic acid $C_{18}H_{34}O_2$, palmitic acid $C_{16}H_{32}O_2$, also the so-called neurine $C_5H_{15}NO_2$. Neurine is evidently produced from the gelatine constituent leucine $C_6H_{13}NO_2$, which after oxidation by 2 atoms oxygen, separates 1 carbon dioxide COO and absorbs 2 hydrogen from the stearic acid, thus reducing the stearic acid to oleic acid.

Neurine may not only be derived from nerve fat for it can be produced artificially from trimethylamine CHH CHH CHH NHHH, ethylene oxide CHH CHH O and water HHO. Thus all that is required to produce neurine is the union of ammonia with 5 hydrocarbons, which are present in leucine, and a little oxygen. But neurine could just as well result from ammonia in union with propionic acid $C_3H_6O_2$ and 2 hydrocarbon of the stearic acid of the nerve fat $C_{18}H_{36}O_2$, which is thereupon reduced to palmitic acid $C_{16}H_{32}O_2$. Accordingly, if only sufficient ammonia is present, an equally productive source of neurine exists in the fatty material of the nerve fat and again in the leucine of the gelatine. And this is a matter of special importance, since a poisonous combination of neurine and ammonia is present in almost inexhaustible quantities in the sputa of consumptives. The sputum makes its origin from fat plainly known by its fatty nature, which prevents its dissolution in water, while its gluey nature points to its connection with gelatine.

The ammonia needed for producing the masses of neurine from fat is supplied from the blood which stagnates in the fine capillaries which traverse the epithelium of the air passages. *All stagnating blood* whether in or out of the veins produces ammonia and we know that ammonia, even in dilution showing merely a trace, paralyzes the nerve functions. Everything, therefore, depends upon an active blood circulation plus whole red blood if the lungs are to remain in good health.

What then is the poisonous substance which originates in neurine and is found in the sputa of those suffering from consumption and in the ill-smelling, putrid expectorations of those afflicted with *Bronchitis putrida?* This substance is the so-called ptomaine or poison of putrescence (cadaverine, putrescine). It may be extracted from the heart as well as from the lungs and liver of corpses, perhaps because all of these organs are traversed by nerve substance and blood vessels as well as by gelatinous connective tissue in close juxtaposition.

The chemical formula of ptomaine or *cadaverine* is $C_5H_{14}N_2$, a compound which shows it to be an addition product of neurine with ammonia, separating water, thus:

Neurine	=	$C_5H_{15}NO_2$
Ammonia	=	H_3N
Total	=	$C_5H_{18}N_2O_2$
Substract 2 HHO	=	H_4O_2
Remainder	=	$C_5H_{14}N_2$

Ammonia always has a hydrolytic or *dehydrating action.* From this point of view the edema or *Hydrops pulmonum* which accompanies consumption is merely a symptom. The *essence* of the matter is the appearance of ammonia from stagnating blood.

I here recall the fact that poison hemlock (coniin) can be prepared artificially from gaseous ammonia, acetone and ethyl alcohol, while in nature it is produced from vegetable albumin by imperfect oxidation and hydrolysis (loss of water). And it will, I think, prove to be of particular interest that also certain ptomaines, putrescine which can also be extracted from putrefying horseflesh, purtrefying mollusks, fish and similar substances, especially from putrescent urine which in cystinurea dissolves the gelatine of the bladder, ptomaines can also be produced artificially as pentamethylene diamine, i. e., as a compound of 2 ammonia with 5 hydrocarbons, with partial oxidation and hydrolysis. Thus on one side ammonia and on the other 5 hydrocarbons from whatever origin can form the basis of the ptomaines. These ptomaines in the expectorations of consumptives are the proper fatal cause, which spread the putrescent decomposition to neighboring tissues so that at a certain stage the walls of a larger artery burst and the blood gushing forth in a strong stream fills the lungs, causing suffocation.

The hemorrhages from the lungs at the beginning of the disease are not to be compared with a fatal flow of blood in the latter stage. The former are more of the nature of a curative effort: the carbon dioxide collected in the blood bursting through the pores mechanically forces the blood from the capillaries, in the same way that the carbon dioxide forces the seltzer water with it when the cork is removed from the bottle. This does not show a destruction of the connective tissue in the alveoli, and it is a matter of experience that, after such a discharge of blood surcharged with carbon dioxide, the health of such patients generally improves if strength-giving nutriments and a suitable manner of living and activity in the open air cooperate in the cure.

However, a cure can no longer be expected when the destruction of the lung substance has reached a certain point. Nor will a poisonous ammoniacal decomposition product of gelatine like Robert Koch's lymph vaccine be of any use. Hastened deaths that followed this treatment have been much more numerous than has been openly admitted: four were reported to me alone. On the contrary, the ptomaine substance show us the way to pursue a curative treatment, because the ptomaines upon treatment with acids lose their poisonous character. Naturally enough! The poison is just the ammonia, acids chemically bind ammonia and destroy its infectious property. By the nature of the case the infecting power of the ptomaines should be destroyed by the periodical inhalation of the vapors of weak, heated vinegar. The othe points in the curative treatment of tuberculosis will be dealt with in the therapeutic section.

If I had not got out of the usual pharmaceutical rut, I would not be able to relate anything new about consumption. In October 1858, we were 58 German pharmacists facing our public examination. As the final examination took place but once a week, four candidates being examined at a time, the last four had their turn only after waiting fourteen weeks. It was customary to draw lots for the succession to be observed and I had the bad luck (or so I thought at that time) to draw the last number. Consequently, I had to face an involuntary leisure of fourteen weeks, so I availed myself of this opportunity to attend medical lectures.

I was particularly eager to accompany a medical man to the operating room in order to observe Dr. Langenbeck, hoping all the time that sooner or later I would hear something about consumption, in which I was particularly interested since my father had died of it. But my expectations were not satisfied. As a compensation, however, I saw two operations which left me perplexed.

The first one was performed on a workman of a factory making *phosphorus matches* in which his spongy (necrotic) lower jaw was cut away. Langenbeck commented on this by asserting that in his opinion behind the mortified bone, new bone callous substance had already formed. I thought to myself: The old lower jaw, made solid by calcium phosphate, has not withstood the dissolving effect of the phosphoric acid. (I recognized in this substance the product of the oxidation of the phosphoric vapor breathed in and realized this was the damaging factor.) — And now in its place a new healthy jawbone should have emerged? The operation took place and Langenbeck confessed that he had been mistaken, that no new callous substance was actually there. He instructed his assistant to seize the patient's tongue, which had lost its support on the tongue bone, so that he should not swallow it and be suffocated. This precaution however proved superfluous, since when sawing off the lower jaw the arteria maxillaris had been severed along with the jaw and the blood streamed out of the artery, flowing without a stop like a fountain. The patient, of course, died instantly.

To me, this whole event seemed like a tragi-comedy played for the entertainment of the students. When the discussion of the case started, I expected, quite naturally, some reference to chemical processes, but nothing of the kind happened. I should have liked, then, to be the professor and to say the following:

Gentlemen, please remember the experiment which Henry Rose has undertaken in front of you. He placed a tube-like bone into diluted hydrochloric acid; the latter, in a few days, extracts the calcium phosphate and magnesia from the bone, leaving behind the callous substance which, because of its gelatine, keeps together the calcium phosphate in the shape of the bone. If, now, the molecules of the phosphorus calcium are no longer closely united but divide up into a spongy, loose shape, we must from this conclude that the binding gelatine substance has disappeared. Henceforth, we must try to bring it back to its proper place by means of nourishment. Thus I would have spoken, so that instead of taking something away, something would be added.

After this experience, I visited, while maintaining the same point of view and feeling equal distrust, an operation for the removal of *breast cancer*. The cancerous breast was cut away by Langenbeck and he said that with the cut one should go a good deal farther than the apparently cartilaginous tissue in order to be perfectly sure of having seized all, even the slightest infectious germs, and avoid any returns.

Very strange, I thought. There in the phosphorus dead tissue was lacking the cartilage (callous substance), while here, in the case of cancer, it is in an unsuitable spot. It is worthwhile to seriously think over such cartilage formation and cartilage consumption and this is a task belonging to chemistry. But, unfortunately, not a word has been said about it here. I have heard only important-sounding words like exudation, edema, infiltration, coagulation, necrosis and so on. In plain English they mean: sweating, swelling, penetration, clotting and dead tissue.

Becoming tired of playing the part of an insubordinate pharmacist and a so-called "dispenser", I decided, though late in the day, to take up the study of medicine. And so I eagerly availed myself of the opportunity on the very first day of the lectures to be present at the dissection of the body of a man who had died from *lung consumption*. How anxious I was to see for myself what one heard so often said: "The doctor says one lung has already disappeared and there is only a little bit left of the other." What must this look like? And how was it possible to live even one day longer under such conditions? To judge by the smell of putrefaction so very characteristic in the case of bronchitis putrida, the putrid lung tissue should bring about death within 24 hours through blood poisoning, and yet the patients drag on so many months. I was burning with impatience to see what such a lung, half consumed, looked like and this I was now able to do. Dr. Z. apeared. After an introduction aggravating my impatience, he seized a scalpel. From the collarbone downward on both sides of the chest he made a cut through the ribs, when his scalpel broke so that he had to exchange it for a stronger one. Then he raised the desiccated part of the chest in front of us exposing the diseased lungs that I had so long wished to see.

And what did I see? *Both lungs were there*! Neither a whole nor a half lung was missing. But instead of the healthy, pink-yellow color, as we know it from looking at the lungs of calves, the consumptive lungs were bluish-back, and instead of the loose and spongy texture, extended by air, they showed themselves to be compact and lumpy, collapsed to a small volume.

Now I was satisfied, because I saw what in the case of consumption was really the point in question. Here I found what I needed, to complete my knowledge about phosphorus, dead tissue and cancer. In consumption, cartilage substance also is at stake. What disappears is the elastic gelatine, the gelatine-yielding sinewy fiber, which due to its elasticity can expand the lungs and contract them again in the rhythm of breathing, when expanding and when contracting since it enables the lungs to absorb air to expel air (carbon dioxide gas).

The sinewy fiber base of healthy lungs has a distinctive appearance, as can be noticed in rabbits for example. And now, examining the bluish-black collapsed consumptive lungs, I recognized that this indispensable sinewy substance had dis-

appeared. How could this happen? To find an explanation for it, a look at the opened abdominal cavity was sufficient. In the bowels there was not the slightest trace of fatty substance and only insignificant remainders of fat were in the other regions of the body, as for instance below the pleural membrane. This threw full light on the matter, as the lacking fat supplied the explanation for the missing gelatine substance.

The *fat* in the lungs was first consumed by oxidation through *breathing,* followed by the loss of the *gelatine substance* in the same manner, because these were *not* adequately renewed by nutriment. In gelatine there exists combustible fat substance in the form of hydrocarbon CHH. Animal gelatine is in this sense fat $C_6 H_{12}$ united with 2 ammonium carbonate COO NHHH. I cannot too often call attention to the fact that this peculiar chemical union can be split into two unequal parts, namely:

Glycine-gelatine sugar CHH, COO NHHH consisting of 1 hydrocarbon and 1 ammonium carbonate, and

Leucine gelatine CHH CHH CHH CHH CHH, COO NHHH which must be considered as glycine to which 4 additional hydrocarbons are attached.

When the hydrocarbons of the gelatine substance are oxidized into carbon dioxide and water through breathing, ammonium carbonate can remain which paralyzes the nerves. However, this is harmless if the body has *sufficient minerals* so that the ammonium carbonate leaves the body in a dehydrated form as urea in the regular way. Only if the urea does not find enough mineral salts in the blood, is it changed through water absorption into ammonium carbonate which produces the paralyzing effect.

Thus the steps in consumption can be summarized as follows:

1) No new fat is replacing the consumed fat, because the bile produced from the blood albumin for the assimilation or, rather emulsion of the fat eaten, along with peptones, is too weak inasmuch as it does not contain sufficient soda and sulfur.

2) The available fat, together with the gelatine-producing connective tissues are consumed more and more through oxidation, and this takes place in all regions of the body. Therefore, it is superfluous to distinguish between the various kinds of consumption according to the region or organ especially affected by it, since there is no spot in our organism where gelatine substance is not present.

3) In the proportion in which, because of the weak nature of the bile, the new formation of fat and connective tissue diminishes (from lack of the proper nutrition), the blood salts and the minerals of the blood diminish, since these, as long as breathing takes place, are constantly being eliminated with the urine. The most important of these mineral substances are — and this cannot be repeated too often — *iron, calcium earth, soda and sulfur,* since without these no normal blood gelatine can be produced.

4) In proportion to the diminution of the red blood corpuscles not enough of the inhaled oxygen is retained in the blood. The result of this is that, instead of the complete oxidation of the gelatine-yielding connective tissue resulting in carbon dioxide, water and urea, an incomplete oxidation takes place. There stays behind, so to say, non-burnt remainders which are characterized as a union of partly-oxidized leucine gelatine with lactic acid in the form of tyrosine $C_6 H_2$, NHHH, $C_3 H_6 O_3$. This substance, perfectly innocuous as such, is often found in cheese, appears in the digestion of protein as a normal substance under the name of peptones and is also found in the cheesy degeneration of lung tissue. Bacteria specialists call this tubercle bacillus, leaving its chemical nature unexplained, the understanding of which however is essential in bringing help to the sufferers.

The little crystals of tyrosine, presenting themselves partly singly, partly clustered, in the lungs of consumptives, are considered, erroneously, by bacteria specialists as being the cause of the illness, while as a matter of fact they are merely its consequence.

It is quite logical, after a thorough knowledge of the chemical processes prevailing in consumption, to come to the

conclusion that rational nourishment alone can serve as the only appropriate and natural healing factor, as long, of course, as the shrinkage of substance has not gone beyond a certain limit.

Epilepsy, or the Spasmodic Diseases of the Nervous System. The first stage on the road towards the understanding of the cause of spasm and convulsion is revealed to us through the experiments of the English physiologist Stenson. This investigator made a ligature on the femoral artery of a dog and discovered that the leg became paralyzed and remained paralyzed even after the ligature was removed. From this it became plain that a system of nerves ceases its proper functions when its supply of oxygenated blood is interrupted. Now, let us see what conclusions we can draw from this instructive experiment:

1) The absolute withdrawl of arterial (i. e., oxygenated) blood from any nerve region suspends its functions *in toto*.

2) An incomplete supply of oxygenated blood will cause an imperfect action of the nerve region in question.

3) If we succeed in supplying a nerve region which is acting imperfectly with an adequate supply of fresh, oxygenated blood, the full nerve activity will be restored.

St. Vitus's dance and epilepsy which develop among school children may often enough be attributed to a defective condition of the blood and to weakness of the nerve substance resulting from malnutrition. The nerve material does not have sufficient power of attraction due to deficiency in salts of *phosphorus,* the source of its electric excitability and of its capacity to attract the blood itself. And the blood does not contain enough *iron* to bring about a more intense attractability; also, it is deficient in *calcium* and *sulfur,* which together with the iron are required for the formation of the red blood corpuscles to ensure adequate blood circulation; and, finally, it is often deficient in salt particles which electrically excite the walls of the blood vessels and nerves. In such a condition caused by malnutrition, interruptions of the circulation accompanied by electroscopic manifestations in the form of fits and convulsions are easily explainable.

The first stages in such a spasmodic condition in children is shown by their inattention and absent-mindedness. These signs are almost universally regarded as deserving of punishment and they receive it; but often the children should not be blamed, these states being merely the results of nutrition lacking the vital minerals and of the monotonous methods of teaching.

Where but little and weak nerve material is available, but little can be taken away or put in motion. Who can count those who dream or even sleep during many a sermon! And from underdeveloped children is expected what cannot be accomplished even by adults, namely, to resist the tendency of eye and ear to become wearied by uniform monotony? The cramp-like rigidity of persons who have gone to sleep from nervous exhaustion, mostly anemic persons, throws considerable light on spasmodic states in general.

We must realize that our nerve substance with its salts of phosphorus possesses its own *electricity* by which it exercises an attraction on the blood. In accordance with the nature of electricity to extend itself to the greatest possible distance, i. e., to separate into halves, it thus flows to two terminal poles bringing about radiation under certain conditions. For instance, the nervous systems of the intestines and the brain due to inadequate circulation of the blood cease to maintain their connection or, through a check in the circulation caused by the accumulation of carbon dioxide which hinders the process of combustion, the nerve substance stops altogether to be consumed. In the latter case, the constant escape or radiation of the electricity accumulated at the terminations of the nerves is identical with the continuous electric discharges in the muscles producing tetanus, i. e., convulsive twitchings which follow one another so rapidly that no interval is perceptible between them, whereas when the interruptions of the circulation are only temporary those twitchings or convulsions occur which are known as St. Vitus's dance.

Tetanus shows that the elctricity in its attempt to reach the terminal poles by the shortest route tends to stretch out the nerve trunks into a straight line and they draw with them the substance of the muscles in which the substance of the nerves is imbedded.

Thus the *distortion* of the facemuscles is due to the stretching of the third to the seventh pair of nerves including the oculomotor, the trachlear, the trigeminal and the facial nerves. The checked respiration indicates that the tenth nerve-pair (vagus) is in spasms and the foam at the mouth points to the paralyzed state of the nerves of the salivary glands. Loss of consciousness shows that the blood has withdrawn from the brain into the veins of the abdomen, as is also indicated by the paleness of the face.

Taken altogether, the deduction from Stenson's experiment, which shows that no nerve region can properly perform its function unless it is supplied continuously with oxygenated blood, applies also to spasmodic diseases. I mention a case of epilepsy which took place from the time the patient fell on the ice on the back of his head. Since at the same time the patient began to suffer from diabetes, there could be no doubt that the various symptoms were due to an injury of the vagus nerve, which originates in the medulla oblongata, the disorganization of which causes inadequate oxidation of the blood, always the cause of spasmodic conditions in general, as well as of epilepsy in particular.

Cramp of the *jaws* in newborn infants may be attributed to a deficiency of oxygenated blood from being impoverished of *iron, calcium, sulfur* and *salt* particles by feeding with diluted cow's milk. The death which often results is not the result of the cramps, but of the paralysis of the nervous system due to general want of oxygenated blood. Cramp in the *calves,* which come from crossing one's legs and are due to the compression of the popliteal artery which approaches the surface of the skin behind the knee joint, remind us of Stenson's experiment.

Of a similar nature is the piece of legerdemain which Moses learned from the priests of Sais and imparted to his brother Aaron, of throwing a snake into tetanus so that it became rigid like a staff by strongly compressing the artery of its tail. By this means the end of the spinal column was cut off from a proper supply of blood and the whole spinal cord experienced a longitudinal rigor since its proper electricity flows toward the two terminal poles.

Epilepsy is often connected with interrupted menses. Here the deficiency in the blood of nerve-quickening oxygen is manifest. It is the same when epilepsy is connected with sterility and cramp of the uterus.

The crawling sensation as if from a number of ants which precedes an epileptic attack points to the gradual withdrawl of the electric induction current which under normal conditions is active in the walls of the blood vessels, owing to the circulation of the iron-holding blood. The patients first notice this withdrawl from the feet toward the heart, the principal blood receptacle. The second step is, that the blood withdraws from the brain and unconsciousness ensues. Finally, all the blood collects in the capacious blood vessels of the intestines, convulsions and rigidity then set in as the physical expression, on one hand of the interruption of the electric current in the walls of the blood vessels and, on the other hand, of the continuous discharges from terminations of the nerves. Since disturbances in the circulation give rise to epilepsy, the therapeutic part of this work will consider the conditions which can re-establish a regular blood circulation.

THERAPEUTIC SECTION

Abortion, Miscarriages. The death of the fetus is caused in most cases by the mother's blood when either in quantity or quality it is not suitable to nourish the new organism sufficiently. Just as pears and apples, chestnuts and fruits of every kind fall off prematurely and undeveloped if the soil does not contain

enough of the substances necessary for the formation of the fruit (potash, soda, calcium, magnesia, iron, phosphoric and sulfuric acids), so also in the tendency to abort, the weakness of the constitution of the blood is faulty. This state is successfully combatted by taking daily half a pint of physiological salt water and 20 to 25 drops of Hensel's Tonic on a teaspoonful of sugar.

Damage of cigarette smoking to women, particularly mothers. The German geneticist Dr. Bernhard for 30 years checked on his card index of each patient the number of cigarettes regularly smoked. Thus he divided his patients into two groups: those who smoke at least three cigarettes daily and the non-smoker group. Five thousand non-smokers were compared with 660 smokers including their diseases, so that the extensive tests permit a reliable comparison, as follows:

	Smokers	*Non-smokers*
Diseases of thyroid	36.2 %	5.8 %
Miscarriages	20.0 %	15.3 %
Premature cessation of menses	20.0 %	1.7 %
Premature births	6.6 %	1.1 %
Disturbances of births	42.4 %	24.6 %
Disturbances of menses	39.5 %	13.3 %
Eclampsia	3.6 %	0.2 %
Premature old age	65.0 %	3.9 %
Barrenness	41.5 %	4.6 %
Number of children per 100 marriages	98	176

The claim therefore is justified that under the influence of the tobacco poison the normal functions of the human female are definitely disturbed and eventually interrupted. Further, the children of heavy smokers are endangered, even before their birth, by mother's blood, then by mother's milk and by breathing tobacco smoke in smoke-filled rooms.

The danger of radioactivity. This is a new, insidious danger affecting the mutation rate in all of creation from plants to man, the mutations (changes in form and quality of the offspring by damaging the heredity-carrying genes) will reduce fertility, cause abortion, stillbirth or imperfect individuals. The long range effect may not be felt for generations. For the same reason, radium and roentgen rays should be strictly avoided; they do more harm than good. — Nobel prize winners Dr. Hermann Mueller and Dr. Reimann.

Asthma is due to defective constitution of the blood causing a disturbance in the blood circulation in the vascular system, affecting those portions of the vagus nerve which end in the air cells. The result suspends the action of cells until sufficient blood flows in from the general vascular system to restore the circuit and so remove the cramp. Attacks of asthma generally occur at night when most of the blood is concentrated in the digestive system for the sake of forming new blood, so that a temporary local scarcity of blood in the pulmonary area exists. This is similar in character to epilepsy which is due to scarcity of blood in the brain.

A spasm always manifests itself when the circulation stagnates and thence the proper electricity of the nerves comes into play. In some cases in which lungs, stomach or uterus are affected, the spasmodic manifestation is confined to some special region of the body. But in all cases the activity of the nerve electricity, which is based on salts of phosphorus, can be traced to *disturbances in the circulation.*

In asthma, the fine air passages, in whose annular muscular fibers the nerve fibrils are imbedded, are affected whenever they experience an interruption in the regular supply of arterial blood. In this the central blood reservoir — the heart — takes a leading part, so that emotions frequently cause attacks of asthma. Similarly, asthmatic attacks may be provoked by sexual excesses disturbing the circulation and by indigestion causing a long, continued concentration of blood in the abdominal region.

The tendency to asthma is not to be considered a special disease, but merely a symptom, and various circumstances show that the real cause is an inadequate supply of red blood corpuscles. This is indicated by the rheumatism which so often accompanies asthma and which also does not represent a disease but only a symptom. When we inquire into what causes this deficiency of red cor-

puscles, we find that those corpuscles which are used up in respiration cannot be replaced unless the nutriment supplied to the body contains sufficient iron, calcium and sulfur to adequately replace the amounts of these substances, which daily pass away in the urine; for calcium and sulfur are indispensable for the formation of normal albumin in the blood. This lack of calcium and sulfur is also manifested by the occurence of itch often accompanying asthma. The itch parasites are produced from the phosphatic material in the epithelium which is full of nerve fibrils, when the blood is deficient in calcium and sulfur. This is the reason why Napoleon I suffered from itch, as his principal daily food for a long time consisted of ox brains, which contains neither calcium nor sulfur. This extraordinary diet gives us the key to many strange pathological problems, notably the extreme nervousness of Napoleon, which sometimes reached the verge of madness. While in Russia he commanded regiments to take up their position even though he knew that only the commanding officer was alive and, when he was told this, he brusquely declared that he did not wish to be reminded of the fact.

When speaking of the specific disease of asthma we are at the very heart of universal pathology. Once we know that normal blood contains twice as many sulfate as phosphate salts, we understand that any considerable variation from this proportion must necessarily produce corresponding disturbances. The irregular behavior of the phosphatic nerve substance is kept in bounds by the due amount of sulfur which the blood contains.

Many subjects appear completely incomprehensible when considered by themselves, but when brought into relationship with others they become clear and understandable. By viewing from a common standpoint diseases which are apparently unrelated, pathology and therapeuticts become simplified to an astonishing degree. The association of asthma with obesity clearly shows the deficiency of red corpuscles, for if enough of them were present sufficient oxygen would be breathed and the fat in consequence would be oxidized instead of accumulating, provided this is coupled with enough physical activity.

Wine contains neither calcium, sulfur nor iron in any appreciable quantity for during fermentation the calcium is precipitated as tartrate of calcium and the iron as tartrate of iron, and the sulfur contents of grapes is only 1/20th of the weight of the ashes. Wine drinking causes a condsiderable amount of urination which carries away constant amounts of iron, sulfates and calcium compounds from the blood. It follows that when wine is drunk regularly every day, there results in time a condition when the blood contains too little of these substances to enable it to form a proper new supply of red corpuscles. It is then, that asthma, obesity and rheumatism begin to rule.

It is a matter of experience that asthma and obesity may be cured by copious consumption of Driburg mineral water which contains 15 grains of sulfates of soda and magnesia per quart, the same amounts of sulfate and even more of carbonate of calcium, together with over 1/2 grain of carbonate of iron. Iron and sulfur also remove nervous irritation (insomnia) because the sulfur of the blood keeps the phosphorus of the nerves in equilibrium. The extraordinary efficacy of sulfates in connection with iron and calcium in cases of corpulency is shown by the effect of the Ferdinand spring at Marienbad (Czechoslovakia), which contains 1/6 ounce sulfate of soda, nearly 1 grain sulfate of potash, about 15 grains carbonate of calcium together with magnesia and nearly 1 grain ferrous carbonate per liter. The Rakoczy spring at Kissingen has about half the strength. What is effective in all these three springs is iron, sulfur, calcium and magnesia.

Enrich your blood with minerals.

Here is an effective treatment to improve and normalise the blood constitution and circulation with lime, sulfur, iron, silica and soda extending over 3 to 6 month in the folowing manner:

1) Begin the day by washing the entire body with *hot* water, as hot as you can stand it, for several minutes. (Add

to the water a tablespoonful of sea salt or a pint of vinegar when feverish.) Then shower the entire body with *cold* water for ten seconds or only the face, arms and feet. Do not dry the body, let the skin absorb the water. If necessary return to bed for half an hour or take an air bath for ten minutes with physical, or at least deep breathing exercises. Lack of physical exercise is one of the main reasons, why to-days motorised people suffer from various "cultural" diseases.

2) At breakfast, dissolve ½ teaspoonful of Glauber's salt (sodium sulfate) in a cup of *hot* herbal tea with lemon juice and sugar. Mixtures of herbal teas are available for most ailments. For your health's sake drink herbal tea daily.

3) At noon, stir into a cup of herbal tea or soup, or sprinkle it on the food, 5 to 10 grains of calcium-magnesium phosphate.

4) At dinner or supper take 8 to 10 grains of washed sulfur with 3 to 4 grains of hematin iron stirred into a tablespoonful of milk or soup.

5) At bedtime dissolve ½ teaspoonful of nutritive salts in a cup of warm water consisting of magnesia trisilicate, sodium bicarbonate and sea salt. As a cathartic take ½ to 1 teaspoonful of Dr. Kurella's pectoral (lung) powder consisting of senna leaves, licorice root, rhubarb root, fennel seed, washed sulfur and sugar. It regulates the metabolism.

Basedow's Disease. All of the symptoms accompanying this complaint shows that it is, beyond the possibility of a doubt, a case of partial *paralysis* of the sympathetic nervous system. This is plainly indicated by the increased rapidity of the pulse. The heart receives its principal impulse from the cerebro-spinal nervous system, namely, from the branches of the vagus, while strands from the thoracic ganglia of the sympathetic with which the vagus fibers are interwoven like meshes, exercise a retarding influence analogous to the retarder on the pendulum of a clock. If the pendulum is removed and the weight is still allowed to act, the hands run around at a high speed and only regain their proper motion when the pendulum is put back in its place. The same sort of thing occurs in the action of the heart whenever the regulating factor of the sympathetic system is disturbed. That a relaxation of the fibrils of the sympathetic nerve takes place is shown by the enlargement of the blood vessels which are largely constructed of spiral windings of the sympathetic fibers. With this enlargement the overfilling of blood in the upper thyroid artery as well as the branches of the ophtalmic artery are intimately connected. Both these arteries are supplied by the external carotid artery from which (indirectly by means of the internal maxillary) also the infra-orbital artery receives its blood. Accordingly, a swollen neck and protruding eyeballs are among the symptoms of Basedow's disease. The larynx and bronchi are often affected at the same time by catarrh, also due to the local congestion of blood.

Young girls before reaching puberty often suffer from Basedow's disease. They may be cured by treatment with sulfur, calcium and iron, which give rise to the formation of a greater number of red blood corpuscles, so restoring the circulation by a sufficient absorption of oxygen to its normal and proper condition. What paralyzes the circulation and the vascular nervous system is the surcharge of the blood with carbon dioxide. In the case of the male sex, it may be cured in the same manner by the methodical use of preparations of sulfur, calcium and iron with the addition of physiological salt water to restore the electrifying power to the blood. Complete recovery through systematic improvement of the blood requires on an average a period of three months.

Cancer. Where does the so-much-feared cancer come from? Why does cancer now appear more frequently? Why are not all people affected by cancer? Must cancerous tumors always be operated on surgically?

Cancer is a degeneration of the gelatine-yielding connective tissue, which ends with the chemical decomposition of the nitrogenous gelatine substance. It always attacks only such regions which are particularly rich in blood vessels (the lips, breast, uterus, lungs,

stomach, intestines, liver, kidneys), that is, those which are nourished by an abundant supply of gelatinous blood. This in itself suggests that if we could protect the food which continually nourishes cancer (namely, the blood gelatine) against the peculiar cancerous decomposing process, then the cancer no longer could continue to consume the blood gelatine. As there must be such a remedy, considering that cancer is unable to cause infection, nor can it be transferred to people with *healthy blood,* what then is the cause?

All parts of our body are held together by gelatine substance. Evidence of this is that gelatine can be boiled out of sinews and bones, intestines and connective tissue. The rythm of our breathing depends upon the elastic, springy sinews of the lungs. The sinewy layer of the artery walls is based on gelatine substance, and in the same way our entire body substance is formed by blood gelatine. Is not the entire body of a child formed from the blood protein of the mother? This is so because our organism forms an integral unit.

Everything which requires flexibility and must be able to return to its original position by its own inherent elastic tension is formed by blood gelatine. Analogous to the quivering jelly formed by the cartilage of calves' feet, i. g., the nose and ear cartilages which automatically return to their natural position after they have been bent sideways; also the cartilages of the larynx which by elastic contracting and expanding participate much more than the vocal cords in the production of dissonant sounds or pleasant singing; further, the cartilage rings of our bronchi and the rubber-like bands which glue together the single dorsal vertebrae — all these are formed by blood gelatine.

How can it happen, that the blood gelatine turns into cartilage at some undesirable place, whereby it degenerates into malignant ulcerating growth in the tissues called cancer, but only in some people and not in all?

And why is it, that when a cartilaginous cancer hardening is operated upon, the blood produces cancer anew as long as the customary way of living and eating is maintained? Evidently the disposition to decomposition already lies in the blood and is not caused by any kind of infection.

Here is the answer: Blood is neither water nor simple gelatine water. The gelatine sugar or glycine of the blood gelatine possesses various substances with which it is chemically united, when they are present in correct kind and amount, make the blood gelatine *durable,* protect it from spontaneous decomposition and decay and also prevent an *abnormal cartilage formation.* The latter is a *characteristic* feature of cancer.

That the mineral substances and healthy blood gelatine are able to unite is due to the chemical property of glycine (gelatine sugar) COO CHH NHHH by its content of glycolic acid COO CHH to unite with *basic substance* and by its content of ammonia NHHH to combine with acid substance, and both together, namely, salts.

The following mineral substances are organically united with healthy blood gelatine: potassium oxide, sodium oxide, calcium oxide, magnesium oxide, iron oxide and manganese oxide, as well as phosphoric acid, sulfuric acid, carbon dioxide, silicic acid, fluorine and clorine. All these have been provided for us by our Creator in *primitive rock.*

Each of these substances possesses its own physiological significance in our organism.

Of particular interest from the physical point of view are the concentrating and cementing power of calcium (limestone) in opposition to the liquifying, dissolving and *distributing* power of the alkalies (potash and soda). The following inexpensive experiment will convince anyone: Take a grain of hard soap about the size of a pea. Dissolve it in a bowl of warm water. Now we have *sodium palmitate,* that is, soap in each individual drop, therefore *finely dissolved* and distributed to an almost infinite degree. Now we add about a tablespoonful of lime water and stir. This contains no more than two centigrams of calcium earth (about one-third of the weight of

a peppercorn). This minute amount of calcium earth has the power to concentrate into flakes all hydrocarbons which were combined with the soda in the form of oleic-palmetic acid. Soon a floating layer of soap flakes is formed, which is calcium oleate-palmitate, while in the water sodium hydride remains behind.

So it is understandable, how out of our soda-containing blood the hydrocarbons unite with the calcium phosphate in the form of concentrated solid bone substance and can become separated from the blood. Further it explains how this concentrating cementing power of the calcium earth delays a rapid decomposition of the fat and gelatine content.

Since the blood gelatine and organism need these various and vital minerals which are subject to consumption through breathing and urine excretion, it is evident that our food must contain all the aforesaid minerals so that healthy blood can be produced. Otherwise, this or that part of the body will suffer in the sense that not all the oxidized substance is again fully replaced. A further point is that minerals insure our blood gelatine against chemical disintegration or putrefaction. In fact, these minerals are the real *shape- and form-giving building material* of our body. The gelatine substance which is not even lacking in our brain mass (ammonium phosphate fat), since the brain can be tanned or hardened by chromic acid, it is clear that the gelatine substance is but the glue or let us say the elastic ribbon which holds together the bone calcium, sulfur, iron and all other minerals as an integral unit.

The *resisting power* of our organism depends upon its *minerals*. This resisting power is reduced in the measure that the newly-formed blood gelatine is deprived of minerals. Soda, in particular, is needed as a physiological means of keeping the blood gelatine *fluid* and of preventing its hardening (sclerosis and cancer). Our blood protein is a calcium-*sodium* albuminate. I wish to state that by the addition of a solution of sodium bicarbonate to chemically prepared bacteria after my recipe, all the bacteria disappeared completely. In this way as a result of a repeated displacement of the calcium benzoate a solution of calcium bicarbonate and sodium benzoate followed.

Let us examine the subject carefully, how it happens that on the one hand an increasing number of domestic animals suffer from spleen diseases, foot-and-mouth disease, lung consumption, sterility and other diseases due partly to *putrefaction,* partly to *hardening* of the gelatine, and on the other hand people are suffering more and more from heart and artery diseases and cancer.

In our organism the earths and salt parts are available in *insufficient* amounts and kinds. This deficiency reduces the number of oxygen-absorbing blood corpuscles and with it the vital electrical blood stream and it favours the decomposition of the blood protein, the lymph juice and the gelatine. Since the albumin of the blood gelatine, lymph and nerve substance have chemically much in common and physiologically as well as anatomically pass into one another, it is consequently clear that there must be states of diseases in which *all* the different regions of the body will participate, though in different degrees. And since the appearance of the disease is subject to considerable variation, it becomes explicable that for thousands of years the mistake has been made of supposing that there are as many different diseases as there are modifications in the nature of the disease. (Symptom treatment instead of the natural *unit* therapy.)

The characteristic feature of cancer is cartilage formation. Cartilage is produced by blood gelatine and alkalies prevent the cartilage hardening by keeping the blood gelatine fluid. It follows that whenever cancer starts the blood is of acid reaction, instead of being sufficiently alkaline by means of soda content. What, then is the use of cutting away and operating? It would be infinitely better to normalize the condition of the blood by soda-containing foodstuffs.

In Hirschberg, Germany, there lived, in 1895, an old man of ninety-two suffering from cancer which was declared

incurable by the doctors. I think it is perfectly clear, that even if one is poor and cannot pay for a surgical operation, it is yet possible to reach that advanced age. But if an operation is performed, as a result of the removal of the lymph glands which maintain the supply of juice to the tissues, a disturbance of the usual lymph and blood circulation is the natural consequence. Let us bear in mind that the lymph vessel system is an organic integral unit. If, then, a part of it is cut out for the purpose of attaining a so-called healing, through the resultant scar tissue a great part of the lymph tube network which otherwise served to carry forward their contents to the right and left, forward and backward, up and down, is led into a "blind alley." Consequently, the lymph juice flowing hither from other parts cannot proceed, and so stagnation and new swellings arise. These makes necessary another operation, until one has to proceed operating as far as the lymph nodes of the armpits. But this is all the worse! — as the more lymph vessels are transformed into blind alleys, the more lymph nodes of stagnating juice are brought forth. And since organic substance never stands still but chemically decomposes itself, there arises, out of the stagnating juice, ammoniacal decay and putrefaction products which slowly paralyze the organism and sooner or later death follows.

A doctor knowing these physiological-chemical facts — that ammonia is formed by stagnating blood and that ammonia paralyzes the nerve functions — will think at least fifty years before he removes a lymph gland or destroy by X-rays something which is already morbid.

Of course, I do not say that *all* diseases arise from incorrect nutrition, because there are no doubt many other factors which create sickness. To name a few: climatic influence, emotions, sedentary habits, over-exertion and last but not least the nerve-wrecking addictions — alcohol, nicotine, and the host of poisonous drugs. What I do profess, however, is that healthy food can *prevent* many a disease and that in any event, even if on its own it may not suffice, it actually helps to remove ailing conditions by strengthening the organs and the blood.

Everyone of us will have to admit that finally our existence is dependent on the farmer who supplies us with bread grain, potatoes, vegetables, milk and meat. Now when our farmer is *incorrectly advised* by the errors of the agriculture professors because they are not medical men, and as a result he supplies us with *unwholesome* grain and vegetables and *unhealthy* milk, *how* then can we remain healthy? And another, equally important question: *How* can we expect a healthy, vital rising generation when devitalized food has already degenerated the parents' germ plasm due to food which lacks minerals and is overladen with nitrogen? This question is put to all parents and no one can face it indifferently without punishing himself, his children and his country. It is quality that counts, not quantity!

And now we actually find ourselves in such a detrimental position. Just listen to all agriculture teachers from the west to the east, they all agree that our food and fodder plants thrive well, if we supply the exhausted earth with potassium, phosphoric acid and nitrogen.

Potassium, phosphoric acid and nitrogen! These three substances should suffice to produce good crops? One must admit that plants thereafter do develop a full growth because according to chemical law the nitrogenous ammonia NHHH is able to replace the fixed alkalies and earths. But the evil thing is, that crops produced in such a way *cannot be wholesome nutriments*. I have written about the striking example of the widespread dandelion. It does not even need potassium and yet will grow exceedingly high, for this it only needs calcium and magnesium carbonate and phosphate. But, alas, its flower stem breaks like glass from such a one-sided manner of growth, whereas under normal conditions the stem is highly flexible. That such a plant can supply wholesome fodder no one will claim.

For their growth, plants only need water, air and carbonate of calcium and

magnesia together with some calcium phosphate and sulfate. On this mineral basis the Dolomite Mountains create their plants. Yet with such fodder our domestic animals are not satisfied. Animal saps not only consist of water, the same as plants, but of blood and lymph sap. And the blood of horses and cows, sheep, goats and pigs, requires soda in order to remain fluid. Therefore I ask: How can the cattle get healthy blood when they are fed with fodder which only contains potassium, phosphoric acid and nitrogen? Can we still wonder that since the introduction of potassium-phosphoric acid and nitrogen fertilizer the human diseases and cattle epidemics occur ever more frequently? Also, the feared artery, heart and cancer diseases?

The older generation will remember that the English doctor tried to save the life of the beloved Emporer Frederick mainly by nourshing him with eggs and milk, yet in this manner it was impossible to build healthy blood. Normal blood requires double as much sulfate as phosphate salts, whereas milk contains of the latter about eighty times as much as the sulfate salts. The possibility to normalize the soda content of the blood of an adult by means of milk and eggs becomes all the more hopeless, when the daily urine secretes a considerably larger quantity of soda than is contained in the aforesaid nutriments. This explanation can at least be of use to those who are still alive.

For this purpose I wish to remind the practicing physicians of the physiological fact that, in particular, *sodium sulfate* (Glauber's salt) not only is able to protect the blood from coagulation, but is even able to dissolve already-coagulated fibrin. In other words, soda is the most natural and safest anti-clotting (anti-coagulating) substance. On this account the use of sodium sulfate as an additive to ground rock fertilizer is of considerable significance in sanitation. I particularly consider here the sanitary conditions for public health. Where do we get with the excessive use of nitrogen fertilizer? The more nitrogenous our nutriments are the more ammonia NHHH exceeds the *minerals* and the more easily a chemical decomposition of the blood gelatine occurs. I also ask: Has agriculture been saved from retrogression by the nitrogen-potassium-phosphate fertilizer? Does not one bankruptcy follow the other or *government subsidies* assist the impoverished farmers, while in the cash drawer of the manufacturers of nitrogen fertilizer the millions pile up and at the same time the public health suffers progressive degeneration?

There must be something wrong. Yes, when the manufacture and sale of ground rock fertilizer were as lucrative and profitable as nitrogen fertilizer, then the granite fertilizer would have been introduced officially a long time ago and its use made compulsory. In the meantime, misleading untrue propaganda about the value of nitrogen fertilizer is being spread by powerful industrial interests as appeared, for instance, in the following full-page color advertisement in *Time,* Atlantic edition, September 19th, 1960: "Large high-quality cotton crops are not solely dependent on climate or soil. As all other plants, cotton requires a plentiful supply of nourishment and this has to be provided in the form of mineral fertilizers. Richly fertilized soil will furnish large healthy crop yields. Nitrogen, the "motor of growth", plays a decisive part in keeping the soil provided with cotton's mineral needs."

How can nitrogen gas *replace* the minerals in the soil? This is a physiological impossibility. Irresponsible propaganda is the most insidious way to wreck public health.

Since Adam and Eve's time Nature has produced by magic from *stones water and air* under the influence of electric *sunlight,* grass, herbs, grain, vegetables, etc. for the nutrition of man and animals. The claim that nitrogen is the "motor of growths" is a *chemical untruth* from which springs unforseeable *disaster* for the whole of *mankind.* The only motor of growth is the *sun heat* and this is the most valuable and effective factor, because without the sun no fruit can ripen and all the farmer's work is in vain.

Every crop removes permanently a

certain part of the mineral supply (as plant ashes) and therefore common sense tells us that all removed minerals must be replaced in the depleted soil in the form of ground rock and compost. To obtain nitrogen, God has presented us with the inexhaustible air ocean over our heads. The glycolic acid COO CHH HHO of the clorophyl (leaf green) combines with the atmospheric nitrogen and separates water in its place and thus plant protein (gelatine sugar glycocol) COO CHH NHHH is produced and exactly with its help the minerals are chemically combined as has already been explained.

Catarrh, Colds, Grippe, Influenza. Comparative pathology leads us to the conclusion that the blood mass and the nerve substance hold themselves in a state of *equilibrium* in our organism. This state of balance implies their opposition towards one another, due to their opposing minerals. In the nerve substance there is but phosphorus salt (ammonium phosphate) plus a little silica, whereas the blood in addition contains the aforesaid earthy substances: iron, calcium, potash, soda and sulfur besides chlorine and small quantities of magnesia, manganese and fluorine. The equilibrium between the blood mass and the nerve substance can be compared with the two dishes of a balance, where the nerve substance represents the weighed goods, whereas the earthy and salty parts of the blood are the weights which restore the equilibrium. When the weight in the blood is insufficient, then we understand that a certain part of the nerve substance must be *thrown off* in order to maintain the equilibrium. This process happens in catarrhal affections.

The serous layer contains embedded in it the nerve endings, capillaries and lymphatic vessels and when the epithelial cells are thrown off, the exposed parts, namely the nerves, the blood plasma and the lymph are subjected to chemical alteration due to the oxidizing action of the air. The result is seen in the products of decomposition in large or small amounts. Like all other products of decomposition and fermentation, the catarrhal secretions are infectious and when precautions are neglected may be transmitted from one member of a family to another.

Now infrequently the chemical decomposition to which the stagnant blood is subjected produce suppuration, i. e., the destruction of the connective tissue in which the blood vessels and nerves are imbedded. Since our organism is an *integral unit* in accordance with its embryonic development it is evident that the absorptive action of the lymphatics will distribute the septic matter throughout the system. Now arises the possibility of the formation of the state designated as "cancer" and which cannot be combatted by local operations, because the lymph conveys the germs of decomposition throughout the entire body. Such being the case, it is plain that Emporer Frederick could not have been cured by local scratching or scraping of his cancer which had developed from a catarrhal condition due to the paralyzing action of the ammoniacal nicotine upon the ephitelium of the bronchial tubes. Nor could a generous diet of milk and eggs recruit his strength, since the lymphatics of the whole system were infected with the germ matter.

In fact, catarrhal affections are the result of the practice of indulging in a diet of meat, fish, eggs, wine and beer. These nutriments contain mainly potassium phosphates, thus a mineral which by a chemical conversion with the nitrogenous blood gelatine is apt to produce an abundance of nerve substance. Wine contains neither calcium nor sulfur nor iron in quantities worth mentioning, because as the sugar of the new wine ferments into alcohol and carbon dioxide, its potash and calcium precipitate from the wine as tartrates and its iron settles as tannic iron and the sulfur content of grapes is only $^1/_{40}$th of the weight of their ashes. Drinking alcoholic beverages, however, causes a considerable amount of urination, which carries *away* rather constant amounts of blood *salts*. With such one-sided nutrition, lacking cereals, potatoes and vegetables rich in minerals, a condition must in time necessarily arrive when the blood

is unable to form a proper new supply of whole red blood discs. It is then, that under the harmful influence of the climate (a cold north wind, for instance) the host of colds, bronchial, gastric, intestinal and bladder catarrhs, grippe and influenza began their rule.

The only treatment that can effect a cure is to restore the condition of the external and internal serous membrane full of nerves and lymph juice to its normal function and to arrest the decomposition of the connective tissue substance by the action of *electricity*.

Of a value equal to that of electricity is the *warmth* due to the rapid blood circulation and so we see that at the beginning of a catarrh the introduction of warmth by means of a *hot drink* will effect a cure. Again, a periodic reduction of the nerve substance has a salutary effect. Owing to the chemical decay of the serous nerve membrane *heat* is liberated, in accordance with physical law, noticed as catarrhal *fever*. During this state the patient should stay in his warm bed, *hot-wet packs* should repeatedly be applied to his chest and abdomen, his appetite is depressed and no food should be taken except some *hot* sudorific herb tea so that the lymph phosphate too is reduced. In such a way the equilibrium between blood mass and nerve substance is gradually restored.

A similar condition exists in *gastric* and *rheumatic* fever as a result of excessive or unsuitable use of nutriment. Another cause of catarrh is excessive tobacco smoking. The nicotine of the tobacco smoke contains the poisonous ammonium cyanide which renders part of the live blood iron (hemoglobin) ineffective, because the thus-formed ammonium cyanide is *no* longer capable to bind chemically the inhaled oxygen and by its oxidation *warm the blood*. This explains the connection between catarrh and disposition to colds, coughs and fevers. These symptoms are a kind of weather cock of reduced vitality and nerve power. It is Nature's warning that we must improve the quality of our blood by means of blood salts and earths.

Imperfect circulation which accompanies a defective constitution of the blood leads in women to catarrhal affections which are at first regarded as local complaints, but subsequently as cancer pass into a general decomposition of the lymph. From this point of view the so-frequently-occuring utero-vaginal-catarrh (leukorrhea) is often found to be the first stage toward uterine *cancer*, cancer of the breast, also of hepatic and gastric cancer, a fact which when we consider the connection of the organs by means of the branches of the sympathetic nerve and the network of the lymphatic system cannot surprise us.

Where the cartilaginous substance that produces the ulcers comes from is evident from a consideration of the relations of the lymphatics which inside and outside the thoracic cavity nestle to the ribs and take up from these the cartilaginous substance. This passes from the lymphatics into the veins and from the veins into the arteries and thus the *circulus vitiosus* is completed. This circle is assisted by the internal mammary artery from which branch off the arteries, supplying the bronchia and the diophragm, the anterior intercostal arteries, as also the superior epigastric which in the neighborhood of the navel unites with the inferior epigastric, which is itself a branch of the femoral artery. Since we know that the inferior epigastric supplies the uterus and the ovaries, that it is connected with the superior epigastric which forms a branch of the internal mammary, giving off the intercostal arteries which in turn dispatch the exterior mammary arteries to the mammary glands, we are compelled to ask whether those surgeons who entertain the hope of curing cancerous ulcerations by excision are really quite clear on the anatomical points involved — particularly the connection between the mammary glands, uterus and ovaries?

Surgery ought to have been startled long ago at the fact that cancers in the lymph glands when removed with the knife or killed with X-rays give rise to more energetic tumors than before; but it often seems to be the case that when a surgeon takes up the knife or X-ray

instrument, he expects it not only to cut or kill for him but to do the thinking as well. Cutting away certain parts of the body in which the cartilaginous material dissolved by the lymph happens to have deposited itself can never stop the process of chemical decomposition that passes by the name of cancer; the only proper way to normalize the composition of the blood is by the action of *disinfecting and antiseptic salts — iron, calcium, magnesia and sulfur* which help the decomposing albumin to regain its normal condition, integrity and soundness. *Wholesome food plants rich in minerals* (instead of animal protein) grown with compost mixed with ground granite or porphyry will in great part guard against and make oneself independent of the harmful influences of the weather, which find their expression in colds, grippe, influenza, bronchial, gastric and intestinal catarrhs, as well as catarrh of the bladder and now and then as *Bright's disease.*

Bright's disease also may be considered as catarrhal in nature inasmuch as it shows infectious, putrid material and is further shown by the secretion of fluid in the serous membranes in the form of dropsy. As chilling of the air pipes gives rise to cold and bronchial catarrh and cold drinks may bring on gastric and intestinal catarrhs, so a chill in the back in the region of the kidneys paralyzes the renal plexus causing renal catarrh. This paralysis lets a portion of the albumin pass over into the urine, this symptom being just as characteristic of renal catarrh as is the presence of albumin in other catarrhal secretions. In all these cases the paralytic action on the nerves by the ammonia which disengages from the stagnating blood of the capillaries appears to be an important factor in introducing the affection, just as the inhalation of gaseous ammonia instantly produces nasal catarrh. In agreement with the recognition of ammonia as the cause of the mischief, lemon juice in the form of *hot* lemonade is employed in Bright's disease; as a cure for other catarrhs *hot* sugar water or herb tea with plenty of lemon juice and rum is customarily used. No wonder that sailors and the coasts population in Holland, England, Sweden and America and generally all who are exposed to dampness and cold use *hot* grog as a *preventive* against cold, which being readily oxidized by the respiration of cold air rich in oxygen, assists in keeping up the bodily heat. On the other hand when we consider the habit of drinking alcoholic beverages in warm weather or in a heated room we not only breathe thin air deficient in oxygen, but we also deprive our blood of the oxygen needed for vivifying the nervous system by the alcoholic content of the beverages; while in addition the increased excretion of urine carries off blood salts from the organism.

To these two causes — diminished contents of oxygen and of salts in the blood — many cases of gastric and intestinal catarrh may be traced and these in turn are traceable to excessive indulgence in alcoholic beverages and animal protein. We must repeat that polar bears and seals not only do not feel cold, but they do not suffer from colds, catarrhs, coughs or influenzea. This is due to their constant respiration of cool air and drinking of salt water with the fish they consume. Salts act as electric excitants and also produce warmth. "Salt makes fat," says the proverb. Just look at the *fat*-assimilating capacity of the bile, which is generated by chemical change of the gelatine with salts of the blood, provided the blood is adequately supplied with oxygen by the hepatic artery. This depends on enough red blood corpuscles which absorb oxygen and these presuppose an albuminous substance built up on a basis of sulfur, calcium, magnesia and iron. By taking foods containing these minerals in combination with sea salt, we have the means of storing up in the system a certain quantity of *fat;* and in this substance we have a source of *electricity* and of vital warmth whenever it is consumed by respiration. *Every* substance when it combines with *oxygen* becomes a source of *electricity* and therefore is a sort of guarantee of health and of immunity from the harmful effects of unfavourable atmospheric conditions.

So much worse, that the liquor, wine and beer drinkers remove from their body the *foundation* of the strength of their blood and nerves (sulfur, calcium, iron and blood salts). With the mistaken idea of increasing their enjoyment of life, they are only too often hastening towards an early death.

Catarrh may well be considered a kind of *self-healing* process of the organism. As a matter of fact, in the case of human beings of advanced age, a regular autumn or spring catarrh lasting seven to nine days means a natural regulation and rejuvenating process. This is followed by a sound metabolism and a new rise of our forces. Due to the chemical decay of the nerve mucus, heat is set free according to physical law, which is felt by the individual as feverish heat (catarrhal fever). During this time, appetite is practically non-existent, the assimilation of food is interrupted and consequently no increase of the lymph albumin rich in phosphates takes place. It is in this way that little by little equilibrium is re-established. It is very much the same in the case of gastric and rheumatic fevers which result from rich or unsatisfactory assimilation of food. But there are still other causes of catarrh, for instance, excessive smoking. The tobacco nicotine contains ammonium cyanide which produces a black compound with the blood (hemoglobin) iron which is unable to retain the inhaled oxygen. Therefore, insufficient oxygenated blood is passed on to the liver and the result is ineffectual bile secretion and progressive debility. In this way we can now understand and grasp the connection existing between catarrh and the inclination towards colds, coughs and morbid mucus. All these symptoms are a kind of "weather warning" of diminishing vitality and of the declining strength of our nervous system.

In all cases of colds, catarrh, coughs or influenza, stay in *bed,* keep *warm,* abstain from food and *sweat* by repeated rubbing of the entire body with *vinegar water.* This leads the blood to the skin, increases the natural warmth and produces sweat. Drink *hot* physiological salt water or at least sodium sulfate to kill the fever, drink *hot* sudorific tea made of sheep's yarrow, balm, camomile, elder leaves, linden blossoms, rosemary and wild caraway.

As a cathartic take 1/2 to 1 teaspoonful of Dr. Kurella's pectoral (lung) powder consisting of senna leaves, licorice root, fennel seed, washed sulfur and sugar. Place it on the tongue and swallow with a little water.

Cramp of the stomach — colic of the intestines — gallstone colic. The cure consists in applying Hensel's breathing and improvement of the constitution of the blood by tonic lemonade and physiological salt water.

The Curative Treatment of Cholera Morbus, Cholera, Dysentery. The characteristic mark of these diseases is a paralyzed state of the *intestinal nerve* which is connected with the *nerves of the skin* and largely dependent on their function. This connection is explained by the history of the development of the *embryo,* whereby the nerve endings leading to the *outer* skin and to their *inner* serous ephitelium constitute a connective *unit,* due to their common origin from the outer layer of the three-layered embryonic disc. This is similar to a closed flat bag, when half of the outer surface becomes the *inner* surface when two opposite sides of the flat bag are sewn together. Then also the half of the orinal external layer of the embryonal blastoderm becomes the serous inner layer by the growing together of the edges, of which the growth process called the *linea alba* of the peritoneum is a visible sign. Further, we learn from embryology that the vascular (blood vessel) system is developed from the *lamina media* of the embryonic disc, whence it is called *lamina vascularis,* while the innermost *lamina interna* giving rise to the glands and other organs lined with ephitelium is termed *lamina mucosa* or *intestino-glandularis.* This inner region enclosing the intestines is anatomically closely connected with the sensitive external layer, because the inner layer (ephitelium) produced by the external layer extends over the mucous membrane in closest connection. Due to this anatomic structure the inner and

outer serous membranes must be considered as the external and internal poles of a connected *whole*.

For this reason the outer skin can be brought to perform its functions properly by internal means, for instance, by sudorific teas, as it is done in practice; but the paralyzed state of the internal layer can be removed by external applications. The knowledge of this connection affords a clue to the treatment of afflications caused by external *atmospheric influences,* such as cholera morbus, cholera, dysentery and catarrhal affections.

Young children brought up on the bottle are subject to cholera morbus in the hot summer months. Previous perspiration disposes to chilling of the outer skin, resulting in a partial paralysis of the skin nerves and is transmitted to the inner mucous membrane nerves. Thus the glands do not produce the proper digestive secretions. The bile, the pancreatic juice and the intestinal juice become weak, because the paralyzed nerve ends have lost their power of attracting the oxygenated arterial blood. The cramp-like vomiting shows that the circulation in the capillaries of the stomach walls is interrupted and we must conclude that the same paralytic state exists in the capillaries of the whole mucous membrane of the intestines, since the stomach is nothing more than the *beginning* of the intestinal canal with widened walls. Since the secretion of the digestive juices depends on the nerve action, we can understand, in the case of cholera morbus, why the casein of the milk in the stomach is not digested and in the feces it appears like hard-boiled white of egg mixed with green coloring matter of the bile, biliverdin. If the capillary blood were renewed in the normal way and fresh oxygen brought to the gall bladder, the green-colored biliverdin would be oxidized and the stools would be of golden yellow color.

For curing the cholera morbus of infants, two methods may be simultaneously adopted:

a) The entire body of the child is rubbed with lukewarm vinegar water (i. e., common vinegar and water in equal parts). This operates as an electric stimulus upon the nerves of the skin and communicates this to the nerves of the mucous membrane of the intestines.

b) Eight grains of precipitated carbonate of lime (calcium) in a spoonful of sugar water is given as often as the diarrhea or vomiting return. As a rule, two or three doses suffice.

The calcium gives new consistency to the disintegrated lymph and the fermentation is stopped. Earth! Calcium earth! This provides new strength and keeps the little ones *above* the ground. On the other hand, opium simply intensifies the paralyzed state of the nerves and quite certainly brings the suffering children *under* the ground.

Since milk is liable to chemical decomposition, nutriment must be provided, which gives the watery lymph rapid new strength. Such a nutriment is the gelatinous broth made from calves' feet by boiling them in water with sea salt.

The dysentery of adults has in common with the cholera morbus of infants a cramp condition due to a peculiar electric condition of the air. Due to this similarity, I advise rubbing the body with lukewarm vinegar and taking internally carbonate of lime in doses of a quarter of a teaspoonful in sugar water, but I also advise at the same time eight grains of washed sulfur twice a day. A sulfur is electro*negative* in character, its quieting effect should be ascribed to its allaying the convulsive state of the electropositive nerve substance of the mucous membrane.

In *cholera,* aside from the internal use of calcium and sulfur and the external application of vinegar, the addition of formate of iron (Hensel's tonic) for the purpose of forming fresh blood discs is urgently recommended. The use of sulfur is particularly recommended, because any excess is carried off by the activity of the skin in the form of sweat because the terminations of the mucous membrane renew their activity. Experience shows, that such revivification of the skin nerves is the beginning of the convalescence of cholera patients; when warm perspiration breaks out they may be regarded as saved. That salted gela-

tinous broth of calves' feet should be used in cholera to make up for the loss of lymphatic fluid is simply considered as rational.

Chlorosis, Anemia and Irregular Menses. The frequency of these ailments in young girls, when the organism is striving to attain its full development, is due to the supply of blood being insufficient, to provide for the growth of all the different parts of the body. The blood needs calcium for the growth of the bone structure, and the calcium is converted into bone by uniting with the ammonium phosphate of the nerve substance. When the blood is deprived of the needed calcium, two evils result: a) nerve substance is used up; b) the number of red corpuscles is diminished, and these cannot be formed anew as they should be to make up for the loss through respiration. When the organism lacks sulfur, calcium and iron and the number of red corpuscles is correspondingly diminished, we find timidity and lack of appetite, together with indigestion and constipation. Not only the brain but every part of the body suffers from want of oxidized blood. The tendency to shiver is a consequence of the scarcity of the warming oxygenated blood. The patient feels cold even in the eyes. The resulting low blood pressure causes headache, dizziness, fainting spells, cramps, pains in the limbs and rheumatic symptoms. Palpitation, owing to paralysis of the controlling sympathetic nerve through want of oxygen, sleepiness and constant weariness because the blood is overcharged with carbon dioxide, complete the list of symptoms caused by insufficient red corpuscles in the blood which absorb oxygen.

The electrifying and exciting salts, such as iron and sulfur, leave the organism daily and are passed off in the urine. This explains why anemic girls have what is called a "morbid" desire to eat charcoal and chalk. The charcoal contains the ashy constituents that give firmness to the animal organism as well as to wood, and the chalk is carbonate of calcium which is required for the formation of new red corpuscles. It is by no means an indigestible substance. On dissolving in the gastric juice it forms organic compounds which in conjunction with sulfur, iron and gelatine, form a basis for fresh blood albumin.

Hensel's tonic has proved itself of first-class efficacy. It contains calcium and iron protoxide combined with formic and acetic acids, there being one part of iron and one of calcium in every 100 parts. Its formic and acetic acids enable it to correct the defective action of the spleen, thereby breaking the vicious circle caused by imperfect circulation, defective electricity of the nerves, defective production of intestinal juices and impeded new formation of blood and nerve material. The acids also neutralize the ammonia produced by the congested blood in the capillaries, thus counteracting the paralyzing effect on the nerves. Its content of calcium and iron enable the white corpuscles which are especially formed in the spleen to be converted into red corpuscles. This helps the blood to again absorb, and chemically combine with the oxygen. At the same time, the iron protoxide unites with cyanides and prevents further chemical decomposition of blood albumin which manifests itself by the separation of water (hydropsy) and by cyanosis.

Owing to these characteristics Hensel's tonic accomplishes a great deal, although not everything, as it is especially deficient in phosphates, chlorides and sulfates and cannot therefore replace all the salts eliminated with the urine. The tonic enables the fat consumed in food to be better utilized through the production of normal alkaline bile due to the increased supply of oxygenated blood to the liver, thus emulsifying the fats more completely. They are then sucked up by the delicate terminations of the lymphatics in the alimentary canal.

Blood transfusion by physiological salts. The method of introducing blood from a healthy person into the arteries of a weak invalid is an *antiquated,* incompatible and *often fatal method.* Even if it is succesful it should be attributed to the electrifying salty contents of the blood serum to which the worshippers of bacteria ascribe even the power of de-

stroying bacilli. Indeed, this is not incorrect, for the so-called bacteria disappear when, because of a sufficient proportion of salts and earths, normal albumin is formed and disintegration ceases. Since this is done best in the way instituted by God, by allowing the transfusion of physiological salts to take place *through absorption of the lymphatics,* I assert that the previous removal of fibrin from the blood would not make the violent injection of blood into the opened arteries any more rational Alas! What numerous absurdities will be perpetrated so long as people continue to ascribe mysterious composition and properties to the albumin of the blood through sheer lack of chemical knowledge, whereas the blood albumin consists merely of a combination of partially oxidized and partially unoxidized sugar with ammonia, alkalies and earths. Then it assumes an electronegative relation to the serum with its chlorides, sulfates and phosphates of alkalies and earths, increasing its electric force by its formic acid which acts as a solvent.

Leukorrhea. I recommend one to two glasses of tonic lemonade a day plus 1/2 pint of physiological salt water, a daily dose of washed sulfur, and 1/4 to 1/2 teaspoonful of calcium-magnesium phosphate and magnesium trisilicate in milk, salted and sugared, twice a day. Since a diet of many years of white branless bread and meat deprives the system of silica and other minerals, it is clear that the treatment must be kept up for several months to gradually accustom the system to its assimilation. (See *Asthma* section.)

Calculus and Gravel. The chemical composition of stone enables us to understand that stones formed in the bladder and kidneys are caused by an insufficiency of oxygen and of mineral salts in the blood. Mainly, they consist of phosphates and oxalates of calcium and of compounds of urea.

It is well-known that uric acid is difficult to dissolve in the serum of the blood and thus it remains separate, so the foundation is laid for concretions which impede the circulation in the capillaries, therefore producing local pains and spasms. This separation of uric acid always proves, as cannot be repeated often enough, that the constituents of the blood have not been sufficiently oxidized into water, carbon dioxide, nitrogen and urea. Urea, contrary to uric acid, is easily soluble. Since uric acid mixed with mineral salts becomes *easily soluble* too by forming double salts, we must conclude that in patients who suffer from calculus, the blood is deficient in mineral salts. This is further substantiated by the fact that calculus occurs mainly in persons who indulge in a meat diet, drink alcoholic beverages, breathe impure air in poorly ventilated rooms and live a sedentary life.

Phosphate of potash is almost the only mineral base present in meat, wine and beer. Since the so-called "organic" material of the muscles is based on uric acid and its compounds, the complete oxidation of muscular substance requires a large amount of oxygen. We notice that carnivorous animals when confined, and dogs when at large, have a restless movement hither and thither, an instinctive desire for motion and respiration. Carnivorous birds too, such as the raven, vulture and eagle, move in cool, pure mountain air. Meat eaters should follow their example by breathing cool air or at least by drinking an abundance of water for the purpose of converting the prussic acid basis of the urates into formate of ammonia, thereby forming a basis for fat and gelatine.

The phosphate of potash contained in meat, wine and beer produces by means of double decomposition phosphate of calcium and magnesia with the albumin which is based on iron, soda, calcium and magnesia. In this, however, there is not the slightest danger to our health. A similar decomposition always takes place even in men who are vegetarians and breathe pure air. The only difference is that vegetarians do not drink alcohol which withdraws oxygen from the blood.

As soon as we breathe sufficient oxygen our "perpetuum mobile" produces enough formic acid by means of the spleen and this mixes itself with the blood. The formic acid which is found in the blood and urine of all healthy

people dissolves phosphate and oxalate of calcium. It is important to remember that the urine of patients suffering from stones does not show the acid reaction of formic acid, but on the contrary shows alkaline reaction, turning red litmus paper blue, instead of turning blue litmus paper red. In this way, the precipitation of the phosphates and oxalates and their combination with mucus and gelatine to form calculus is made understandable to the chemist.

From the chemical point of view it is interesting to know that oxalate of calcium forms double salts with chlorides and sulfates of calcium and magnesia, and is easily soluble. It is just the *sulfates* that are lacking in meat, beer and wine.

When physicians order their patients to abstain from nutriments containing calcium so as to prevent the growth of calculus, if is a serious error. It must be borne in mind that the blood albumin cannot exist without calcium. Every moment that we breathe we destroy calcium-containing blood corpuscles whose ashes can only be discharged by the kidneys and bladder. It is therefore physiologically essential that the urine contains calcium. If the patient is not provided with calcium the blood will take it from the bones.

The patient should also be told to avoid eating sweet things. When there is an insufficient amount of oxygen in the blood, sugar leads to the formation of lactic acid, which is a product of the decomposition of sugar. Lactic acid acts in a paralyzing manner on the nerve functions. Normal blood must have an alalkaline reaction to make the inhaled oxygen effective. The albumin of our blood is essentially a soda albumin so physiological salt water should be used as this has an alkaline reaction because of its double-basic phosphate of soda. Its salutary action is supported by the co-operation of combinations of sulfur, calcium and iron which increase the number of corpuscles formed. In this way, by a more abundant supply of oxygen, the oxidation of the rheumatic secretions, such as uric acid, into carbon dioxide, water and nitrogen, is gradually effected. The urates difficult of solution by combination with the physiological salts are converted into double salts easily soluble, which then are discharged unnoticed with the excretion of urine.

When no vigorous stream of oxygenated blood is supplied to the spleen, it's function of producing formic acid is inadequately discharged. This makes it understandable why persons of sedentary habits, such as musicians who must breathe the heated, impure air full of carbon dioxide in overfilled concert rooms lacking in oxygen, are more apt to suffer from calculi both of oxalate of calcium and uric acid. Because of the hot air they breathe, thirst increases. If it is quenched with alcoholic beverages which contain but few salts, their perspiration is increased and thirst becomes more intense. Instead of alcoholic drinks they should drink mineral water(physiological salt water) or tonic lemonade.

Consumption (Tuberculosis). The cause of the chemical disintegration of tissue substance is the lack of oxidizing, electrifying *oxygen* in the blood. Formerly, this lack could not be seen with a microscope as the knowledge of oxygen gas as the vital life and respiration air is not much older than 160 years. Is not a look at the pale blue lips and the sulfur-yellow or grey cheeks, another look at the whole form, and finally the lack of resonance in the voice, sufficient to conclude from such cyanotic appearance and the dropsical symptoms that there is a deficiency in the supply of oxygen, and thence the paralysis of the nerve of respiration and its appendages?

Every tissue which remains inactive is subject to chemical disintegration. It must degenerate and perish. Whether there is cheesy degeneration (tuberculosis) or fatty or suppurative degeneracy (catarrh) is not important, for it all amounts to mortification. The decay of the material formed under the influence of the nerves cannot be limited to the ephitelium of the lung cells but transfers to the mucus as well as to the connective tissue. Therefore, as soon as the sympathetic nerve is seized, it is also transferred to the serous membrane.

In what way is consumption acquired? In damp rooms with closed doors and windows, especially combined with bad nutrition, anxiety and destitution, men become consumptive. Stone masons and miners because their lung cells become filled with dust of silica instead of pure air, are exposed to consumption.

Eskimos who have been accustomed to breathe thick, heavy cold air, when they have been exposed to warmer climates without any exercise, die of consumption because they breathe nitrogen instead of oxygen. Gorillas, chimpanzees, in general all monkeys who are penned up in heated rooms with diluted air, whose rooms are neither aired nor supplied with fresh oxygen while they are wrapped up in woolen blankets and deprived of any extended exercise, become victims of consumption.

Work! Breathing! Motion! — that is what we need most. If fresh cool air enters the lungs, life will flow to the tips of all the nerves. Since life and health rest on steady renewal, on the consumption and growth of the bodily substance (metabolism), the disuse and sparing of the body means its chemical disintegration. Whatever does not advance, retrogresses.

Whatever we may choose to call it, atrophy or degeneration, it does not matter — a *retrogressive process* is taking place. Formed material is turned into unformed or half-formed material; sugar is turned into lactic acid, and lactic acid in the blood contributes to the disintegration of albumin, to the detachment of leucine and tyrosine, to putrefaction. But a putrefying secretion is poison. Whether it stagnates in the ovary or in the uterus, whether the deadly issue appears in the lungs or in the peritoneum, it is and remains consumption, i. e., a retrogressive motion, disintegration of tissue. For it is never the lungs alone which are affected, as *all* the glands are degenerating, some faster, others slower, according to the place of least resistance and the hereditary or acquired neglect of the organs.

All of the far-fetched giving of different names to the many varieties of consumption amounts to nothing at all. It only diverts us from the goal. Even eye diseases in many cases are only dyscrasy, as may be seen with one look at the patient. As soon as the blood is improved the eyes are cured, in most cases in a surpisingly short time.

Dyscrasy means lack of electricity, just as poverty means lack of money. Do not pity the mountaineers for their strenuous life. As soon as *we* climb mountains how painfully do the compressed air cells of the lungs labor at the outset, but with every hour the mountain climbing becomes a greater pleasure and we begin to blossom out. Our muscles become more vigorous, the energy of our soul increases, we laugh and sing. And yet nothing great has come to us, only a little fresh air.

On the other hand, when the diaphragm rests, breathing is hardly breathing, but sighing. The liver does not receive enough oxygen to produce the necessary higher temperature by oxidizing the nerve substance so that bile able to assimilate food may be secreted. Resting on the cushion of the intestines, hanging suspended from the diaphragm, the liver is too little pressed upon from either side to promptly forward the venous blood into the vena cava, and the lungs do not suck it up with sufficient vigor. Therefore, the liver works more wearily day by day, while some regions lie desolate and so suffer fatty degeneration. And all this is caused simply by insufficient respiration. The lungs succumb to a similar fate modified only by their loose tissue.

Patients perspire from anxiety because the only remedy, exercise in the open air, is denied them. When following their instinct and they ask for malic acid which is contained in pears and in most fruit, and which is able to *neutralize the ammoniacal products* of destruction in their tissues, it is called a faulty or depraved appetite.

The drinking of yoghurt, kumiss or kefir has a certain curative effect due to the content of lactic acid, for lactic acid is as useful for the stomach and for digestion as it is harmful when formed in the lungs. It neutralizes, like malic acid, the ammoniacal products of de-

composition, and as the milk-sugar and the casein are already partly chemically split up, yoghurt is an aliment that is easily digested. Common sour milk beaten up and mixed with half the quantity of seltzer water is of as much value as kefir and cannot be distinguished from it either in taste or effect.

We must breathe vigorously, work vigorously and eat vigorously. Furthermore, we must keep the skin open for the perspiration of carbon dioxide by the use of water and soap. A person who does not renew his epidermis by washing will have to yield up his internal (mucous) membrane as seen in catarrh. Suitable clothing should be worn as a protection in changeable temperature against the sudden chilling of the skin which conducts away man's electricity. Breathing dry wintery air is wholesome and our dwelling rooms should be dry and sunny. There should also be cheerfulness of mind by living in pleasant social surroundings. One thing is needed by all! Activity!

New vital force. When consumption has commenced, we can, now that we know our enemy, take steps to help and to heal according to the following universal procedure:

The formation of lactic acid in the lung tissue must be prevented, and the lactic acid already formed must be oxidized. Also, the bloodstream, so long as the lungs do not resume their normal activity, must be oxygenated by means of the venous system. For this purpose a goodly number of reliable remedies are at our disposal. These are substances which can give off oxygen, when having been absorbed by the chyle ducts of the intestines, they reach the thoracic duct and thus enter the venous system, and finally, through the right part of the heart, enter the lungs. These substances are called *glucosides* because they represent chemically condensed sugar. I have already explained in the section *Grape Sugar* how this condensation is effected, how fat is formed from it while oxygen is liberated. The first condition necessary for this change is the access of some oxygen to start the process of transmutation. However, only 8 atoms of oxygen are necessary to start this process, as a result of which there are formed from 7 equivalents of sugar 42 atoms of oxygen and one atomic group of tallow fat. That is one of the *great miracles* which testifies to the creative power of God, and it remains a miracle, although it may be chemically explained, for we cannot imitate this *miracle.*

Under electric tension caused by the liberated oxygen from sugar together with the oily fuel, we have at hand a most important means to fight consumption. Very little is needed of this new vital force.

When we have hydrogen and oxygen gases in the same proportion as in water, in gaseous form, an astonishing force may be liberated by their chemical combination into water. One kilogram of such explosive gas at the moment of its chemical condensation exercises the intense hurling force of 23,380 horsepower or 23 horsepower for one gram of explosive gas. Since $^1/_9$ of the weight of this explosive gas consists of hydrogen, these 23 horsepower depend on $^1/_9$ gram of hydrogen or one single horsepower calls for but four milligrams of hydrogen. And it makes no difference whether the hydrogen consumed is in a free state or in combination with carbon (as oil). In the latter case we have only to use the 7-fold weight of substance, as the weight of carbon to hydrogen is as 6 to 1. Therefore, we need 7 times 4 milligrams (0,4368 grains of oil to produce through its combustion one horsepower. From this it follows that half a drop of oil is sufficient for this purpose if it is burned at the tips of our nerves through oxygen. Now, when we consider that our lungs need only to inhale 8 parts of oxygen in order to liberate and set in chemical activity 42 parts of oxygen by the oxidation of 7 united molecules of sugar (glucoside), we are shown by the appearance of such huge quantities of vital air in our circulating blood, air which we did not inhale, a source of power of which, before this, *we had no knowledge.* The propelling force of the heart, the pumping power of the lungs, now appear in quite a new light. But we must, of

course, always remember that such a result can only be derived from a coherent group of 7 molecules of sugar. A *single* molecule of sugar does *not* effect such a liberation of oxygen.

We must, therefore, ask: Where do we obtain such 7-fold sugar molecules? The answer is given in the section *Sugar Substance*. Gum arabic as a medicinal substance and gluten of wheat as physiological material deserve mentioning. The latter arises from the glucose group of starch through the chemical combination with ammonia, so that gluten (in contrast to the glucose formed into gum arabic by potash, calcium and magnesia) may be regarded as ammoniacal gum arabic. In agreement with this, whole-wheat-flour soups as a remedy for consumption have long been used among the common people. Also *gum arabic* (*Mucilago gummi arabici*) is beneficial in all kinds of fever through its quietly oxidized action. The mucilaginous fluid enters into the channels of the lymph and blood vessels and gives to the blood in the lungs the material for the formation of fat and also oxygen in electric tension. The latter accelerates the circulation and removes thereby the inflammation caused by the stagnation of the blood. Gum arabic is, besides, a very valuable nutriment in the hot season. While it makes the supply of easily-decomposed ammoniacal food unnecessary by its earthy substance which gives cohesion to the albumin, this aliment not only stills the hunger, but also opposes chemical decomposition, especially as it rouses electric force through its transmutation into fat and the liberation of oxygen. Negroes during the time of gum harvest live almost exclusively on the gum. Even the monkeys in South Africa are said instinctively to make use of gum arabic as food. Although it is tasteless and cannot be regarded as a dainty, this can easily be offset, as we shall see.

Another glucoside of similar efficacy is *licorice*, which is the thickened juice of its root, and an infusion of a mixture of licorice root and *marsh mallows* (*Althaea officinalis*). Of almost equal value is the vegetable mucilage contained in linseed. All these remedies are known, but the mistake is made that their nutritive value is overlooked, and consequently they are used in too small quantities.

A mixture of equal parts in weight of the roots of marsh mallows, licorice and linseed for a tea is with good reason favored as a remedy for consumption. But we should remember that large quantities of it should be used. Marsh mallow root contains starch, sugar vegetable albumin (pectine, asparagine) and a mucus corresponding to the glucoside of gum arabic in concentrated form. Almost the same substances exist in the licorice root, together with the glucoside glycyrrhizin with calcium and magnesia.

All these glucoside aliments supply oxygen to the digestive tract, e. g., a brown licorice paste consisting of 1 part licorice, 15 parts gum arabic and 9 parts sugar, also, a gum paste composed of 4 parts sugar, 4 parts gum arabic and 3 parts of the white of eggs. The latter is nothing else than an ammoniacal glucoside and is, as all glucosides, able to give off oxygen. Thus is explained how the chick can live and breathe while the eggshell is yet closed. And is it not likewise with the embryo which is nourished by the maternal albumin of the blood? From this is obvious what an internal source of oxygen we may supply to consumptives by offering them food containing albumin.

Among the aliments rich in albumin are *all nuts* and *most seeds*. Especially valuable are almonds, also hemp seed and poppy seed, all containing the glucoside emulsin. This is why emulsions of almonds, poppy seed or hemp seed were prescribed by physicians with the best results, formerly ten times as much as now. Medicine also is ruled by fashion, and since the worthless theory of bacteria has arrived the good old effective remedies are more and more forgotten at the expense of public health.

In Germany, a glucoside remedy for lung diseases called Dr. Kurella's *pectoral powder* has been used for more than 150 years. It consists of 2 parts powdered licorice root, 2 parts senna leaves, 1 part washed sulfur, 1 part fennel powder and 6 parts sugar. Some physicians add 1 part

linseed powder and 1 part rhubarb root powder. This remedy is useful not only for coughs but also for hemorrhoids and for constipation. The explanation lies in the nerve-quickening supply of oxygen furnished by the glucosides, and also in the sulfur that is usefull in forming the red blood corpuscles which absorb oxygen. The glucoside of the senna leaves is called chrysophan, and fennel seed contains sugar as well as vegetable albumin. The chest powder, which is being bought by the pound, should really be considered a food rather than a medicine.

That stagnation in the region of the portal vein can best be removed through glucosides which furnish oxygen may also be seen from the bark of the blackberry-bearing alder (*Cortex frangulae*) and the rhubarb root (*Radix rhei*) as further examples. Both contain the same glucoside as senna leaves, i. e., chrysophan.

Similar to gum arabic, in the sense of being an aliment which supplies oxygen through the venous system, is the gum of tragacanth. And in the same category may be mentioned the mucus from salep roots native to Europe, the powder of which is of high nutritive value especially for children, and shows its usefulness by forming in the body both oxygen and fat. These excellent suppliers of oxygen for the intestinal nerves during hot weather should be *used a 100-fold more* than has yet been done. Almonds provide a lasting nutriment, containing about one-half oily material and one-fourth waterless albumin, while the rest consists of sugar and tissue, the latter being combined with calcium and magnesia. So the almonds furnish everything necessary to form bones, nerves and muscles. All the above nutriments are of use in fighting consumption.

To expedite the operation of oxygen in consumption, we may use *hydrogen peroxide* (H_2O_2) with appreciable effect, as well as the glucosides gum arabic, licorice and mucilaginous plants. While this preparation supplies the first parts of oxygen which are necessary to liberate larger quantities of oxygen, it is suitable for all catarrhal affections, but especially for consumption when used in combination with Hensel's tonic. The two preparations support one another, the latter by enabling the blood to absorb oxygen chemically, the former by putting oxygen within reach in the circulation itself. For practical use, the purchased hydrogen peroxide, which corresponds to a tenfold volume of oxygen, is mixed with four to five times the quantity of water, and twice daily one tablespoonful should be given in a glass, not in metal which causes it immediately to break down into water and oxygen.

Although in this manner, life-giving oxygen is furnished through glucosides and hydrogen peroxide together with a preparation of iron which forms hemoglobin, and thus the most important requirement is provided for, the other factors which have an influence in normalizing the constitution of the blood must not be neglected. Among these the foremost place belongs to *physiological salts*, i. e., phosphates, sulfates, hydrochlorides and carbonates of potash and soda, to restore to the serum of the blood its electrifying, antiseptic power. Experience teaches that in all cases of stagnating blood in the glandular organs (liver, spleen, stomach, intestines, kidneys, bladder, lungs, ovaries and uterus), the salt-containing mineral waters in spas of both hemispheres possess a healing power. What is particularly beneficial is the *sulfate salts* so that taurine can be formed in the liver through chemical transformation. Taurine consists of 2 hydrocarbons CHH with sulfate of ammonia and together with the pancreatic juice these constitute the material for a perfect digestion and assimilation of food. Avoid sulfuric acid because it neutralizes the alkaline constitution of the bile and so destroys its ability to assimilate fats.

We have so far learned to know the healing power of the glucosides as suppliers of oxygen, hydrogen peroxide as a helpful factor, further, iron and physiological salts as constituents of the blood which generate magnetism and electricity. We have yet to consider *milk* as the aliment richest in calcium that aids the forming of new red blood corpus-

cles, which are enabled of themselves to absorb chemically from the surrounding atmosphere the electrifying and nerve-quickening oxygen. A measure to stop the putrescent disintegration of the catarrhal secretions of the air passages is effected by the inhalation of vinegar fumes, or better yet, *formic acid.*

Finally, consumptives should be freed from the *carbon dioxide* accumulated in the blood which paralyzes nerve action. We cannot remind the reader often enough that a candle is extinguished if we take it into a room where the air contains one-fourth carbon dioxide. Also, the activity of the lung nerves is extinguished if they are encompassed with blood laden with carbon dioxide; consequently, instead of imparting electricity to the connective tissue of the lungs they are left to decompose chemically or to putrefy. Consumptives should be sent to the mountains in order to remove the carbon dioxide from their blood, for there, they can breathe in cool clean air free from dust and the carbon dioxide is more easily *exhaled* under the diminished pressure of the atmosphere. The least we can demand is that consumptives be transferred from the ground floor to a higher and drier story.

The foods which have proved efficient against consumption, supply the fat and gelatine substances that were lost, and the mineral substances (sodium sulfate, calcium and iron) indispensable for the new formation of blood gelatine are:

1) Milk, the nutriment richest in calcium, with its curd substance transformable into blood gelatine.
2) Oatmeal soups, with plenty of butter. Oatmeal is rich in albumin and nerve fat, containing at the same time calcium and also five times more sulfate salt than wheat flour.
3) Natural mineral water containing carbonates and sulfates of soda, calcium and iron, all of which contribute to the formation of blood albumin and normal bile.
4) Herring milk (sperm of the herring) mixed with water. Herring milk is rich in sulfate salt, while the roe is rich in phosphates. Without sulfur no protein. Herring milk also supplies abundant fat and gelatine. (The Irish, eating lots of potatoes and herring, can boast of the greatest number of centenarians.)
5) Bone broth. The gelatine and calcium content of the bones are easily transformable into blood gelatine, needing but little change through digestion in order to be carried into the bloodstream by the lymph vessels, which assimilate the chyme from the intestines. Without calcium, no oxygen-absorbing blood corpuscles can be formed.

The following are damaging factors which contribute to the breaking out of consumption:

a) *Excessive tobacco smoking,* because the ammonium cyanide of the nicotine creates along with the blood iron (hemoglobin), a black compound, Prussian blue, which is not able to retain the inhaled oxygen. Because of this, not sufficient oxygenated blood is brought to the liver, and the result is a deficient secretion of bile.
b) *Living in hot climates.* In order to warm the blood and bring it into living circulation, cool air is far better than hot. For this reason, neither Cairo nor Palermo are desirable spots for consumptives, but rather cool altitudes, such as Davos in the Swiss Alps, even in winter. But naturally, beyond cool air a rational diet belongs to the healing process. Along with sufficient fat- and gelatine-rich food, deep breathing of cool air with adequate exercise (no rest cures) is by itself a protection against consumption. The best proof of all is given by the Eskimos, who in their own environment do not know consumption, but in our climate and with different nourishment, regularly die of this disease.
c) *Food deficiency.* It is perfectly clear that all the time we are breathing, blood gelatine, fat and muscle flesh are being consumed by oxidation and that, if no replacement takes place through suitable nourishment, the dwindling away of physical substance is the unavoidable result.
d) *Disturbing emotions,* which, to the

detriment of the reneval processes in the abdomen, uniformly direct the blood towards the brain.

e) *Breathing of dust.* The chemical nature of dust is of little importance, since flour dust in flour mills is conducive to catarrhal secretion of the mucous membrane of the bronchial tubes in the same way, as is the inhalation of mineral dust by stone masons. Living in air free of smoke and dust is, for patients in both of the above-mentioned working conditions, the first and main requirement for becoming healthy again.

If I had not had the opportunity as a pharmacist, through listening to medical lectures, and later as a medical student, to recognize the existing chemical gaps then prevailing in medical science (the majority of which even today have not been explained). I would probably be as prejudiced by the bacteria theory as my contemporaries, but, fortunately, I was saved from this and I am as much an enemy of the bacteria theory as of surgical operation of lymph glands and cancer. In respect to the latter, I ask again and again: Can anything be healed by removing part of it? Is it not far more important to supply what is lacking? Principally it is the *mineral substances* essential to red blood *which are lacking,* since hydrocarbons of a nitrogenous nature are contained in every foodstuff.

Diabetes. Diabetes is a disturbance of the vagus nerve, specifically appearing in the last branches of the vagus, namely, the kidneys and liver. Regardless of how many cases of diabetes we study, it is always the insufficient content of oxygen in the blood which brings on the affliction. Breathing of oxygen is a chemical process inasmuch as this kind of air is chemically condensed by the iron-holding blood albumin, forming a higher degree of oxidation of the iron. When guided to the nerve endings the chemically-absorbed oxygen is grasped by the oily nerve substance, whereby a certain part of the nerve fat burns into carbon dioxide and water. Then the blood iron returns to a lower degree of oxidation which colors the blood darker due to the presence of nitrogen compounds. Such dark, venous blood returns to the lungs through the right heart ventricle where it expels the carbon dioxide and water vapor and absorbs new oxygen.

The rhythmic constancy of such oxygen breathing causes an identical rhythm of chemical processes in which the body is provided with a new supply of electric tension, because a chemical union of two substances always causes the liberation of a certain amount of electricity.

Thanks to such new loading of the body with electricity by means of respiration our bodily substance stays together in an orderly way. As soon as breathing stops the cohesive electricity disappears. From then on the tissues and muscles, united up to now into groups, decompose into disorder. This is called decay. So long as man breathes he does not decay, at least he does not die.

It can happen that a part of the nerve region absorbs sufficient oxygenated blood whereas another part is deprived when not enough oxygenated blood is available to all regions of the body. The deprived regions are subject to chemical decay or *decomposition* while the remaining organism continues to live for a while.

As an example of this, I point to *scrofula* in which the tissue of the lymph glands loses its solid cohesion. This is due partly because the blood, through lack of calcium, iron and sulfur, does not contain sufficient red corpuscles enabling it to chemically bind sufficient oxygen, and partly because the said earthy substances enter into chemical unions with the blood gelatine thus creating electricity, so that their lack is equal to a diminishing of electric tension. In this connection, bone decay is often found in scrofula, clearly revealing the lack of calcium. Such bone decay also occurs during certain stages of diabetes where the tissue of the toes starts to putrefy because the material of the cementing bone earth diminishes, becoming dissolved by the circulating blood which cannot exist without calcium.

Another example of partial decomposition in a living organism is *consumption.* When the thighs become so weak

from consumption of their bone and gelatine substances that they no longer can carry the body, also when muscle wasting occurs and when stomach and intestines through lack of oxygenated blood no longer can digest food, the brain substance still receives some oxygenated blood so that consciousness is present until shortly before death and the patient continues to plan for the future.

These three diseases, diabetes, scrofula and consumption, have in common that, by taking sulfur salts, iron and calcium-magnesium phosphate in the same proportion as found in bone substance, they can be cured. This is mainly due to the subsequent increase of the oxygen-breathing red corpuscles which require iron, calcium and sulfur.

Also, asthma, hiccoughs, anemia, liver ailments, migraine, disposition to catarrh, constipation, general debility, undulant fever, headache, pounding of the heart, insomnia, lack of appetite and poor digestion, obesity, dropsy, bladder ailments, hemorrhoids, leukorrhea, menstruation disturbances, disposition to abortion, hysteria, hypochondria, nervousness, epilepsy, rheumatism, eczema, eye and ear ailments — all of these are but symptoms of the diminution of the iron-holding red blood corpuscles, these oxygen carriers in which almost always a lack of the electrifying salts in the blood go hand in hand.

With regard to diabetes the lack of oxygenated blood is, as already said, characteristic. Therefore, it can result from the most heterogeneous causes, such as:

1) *A fall on the back of the head* causing an excessive amount of blood in the breathing center of the brain and therefore a partial paralysis of the breathing center.
2) *Sedentary living habits* whereby the diaphragm does not function in an orderly way so that the expired carbon dioxide is retained in the blood arteries of the abdomen, with the result that insufficient vivifying oxygenated blood reaches the liver and kidneys.
3) *Excessive tobacco smoking*. The nicotine of tobacco, containing ammonium cyanide, kills the hemoglobin of the red blood corpuscles whereby the iron content of the blood transforms into mineral prussic acid (hydrocyanic acid), making the chemical absorption of oxygen impossible.
4) *Lack of pure air to breathe*. In this category are found office workers who are afraid of catching cold when they open a window, while on the contrary the cool oxygen-rich air warms and vivifies. Instead they breathe air already exhaled by themselves. Also, cooks in hotels and restaurants become diabetic because throughout the day they breathe hot, thin, oxygen-lacking air near hot stoves. I also know of a farm worker who slept in a stable with many horses and instead of vivifying oxygen he inhaled the carbon dioxide of the horses together with the ammonia which developed from the horse urine. The horses were in no better condition. It is a fact that in the baracks of Berlin an enormous loss of horses took place because the urine-soaked straw was spread to dry during the day in the barracks yard and was returned to the barn in the evening. Thereby, more and more ammonia developed during the night, which is known to paralyze the nerve mucus of the respiratory branches, also causing colds, coughs, catarrh, etc.
5) *Emotions*. Since the branches of the vagus nerve, after forming the lungs and stomach, extend up to the liver, spleen and kidneys, the latter organs may be considered as the other end poles of the center of the breathing nerve in the brain. Indeed, these glands are in intermittent relationship with the brain. Liver swelling often follows deep sorrow and when a lively circulation fails to take place in the liver, the person becomes depressed. The spleen and liver lie below the diaphragm (*hypo chondrion*), therefore, we speak of hypochondria or melancholia meaning black bile, or in England it is called spleen. The kidneys and the urinary tubes are

branches of the vagus nerve coming from the brain so that shock, fear and anguish affect the kidney secretions. Worry and grief affect liver and spleen. Fear takes away the breath of the affected person and in cases of worry and grief the breathing is not regular. In a village where a fire broke out and advanced toward a house belonging to a big landowner, the breathing of his daughter became paralyzed from the increasing fear, anxiety and excitement that their house would catch fire soon. This caused diabetes to set in, which became so acute after three month that the patient had to be treated by a doctor.

6) *Colds*. It is known that colds can lead to inflammations of lung and brain, and lungs and brain form an interlocked nerve section. If diabetes appears after a cold instead of lung inflammation, this is shifted further away to the liver and kidneys, and must be regarded as a partial paralysis of the functions of the vagus nerve.
7) *Intense mental activity*. This is by far the most frequent source of diabetes, thanks to our feverish pace. The human brain weighs about three pounds. Due to its large quantity of electric nerve fat the brain draws the lion's share of the total blood mass in spite of the natural law of gravity which guides the heart blood from the curve of the aorta to the abdomen and the thighs.

When all available blood is led to the brain, this upsets the natural harmony between the abdomen and brain, which requires intermittent mental and physical activity. Thus the abdomen is handicapped. Then not enough arterial blood flows to the spleen and liver. The interrupted supply of oxidizing blood promotes in the spleen an excess of electrolytic split (decomposed) products of the nerve substance which builds the spleen gland from the ramifications of the so-called solar plexis. Such electrolytic products are essentially formic acid and acetic acid, which in a normal quantity supply the venous blood of the spleen with electrically-exciting force, but in excess they are harmful. They wander thereafter with the venous blood of the spleen through the portal vein to the liver and rob the therein-separated, already-weak bile substance entirely of its alkaline, soap-like constitution (because the liver artery brings insufficient oxygenated blood). A healthy bile possesses the power to convert the fatty foodstuffs into a milk-like chyle after emptying into the duodenum. The chyle is absorbed by the lymph vessels, leaving the intestinal mucus, and is guided eventually to the blood and nerves.

No new *fat* is absorbed because the undivided fat drops stay unabsorbed, not being able to enter the microscopic orifices of the lymph vessels, and leave the body unused with the stool. Again, protein and gelatine together with the *blood salts* (phosphates, sulfates and chlorides of sodium, potassium, calcium and magnesia) are insufficiently extracted from the chyme, which otherwise would, together with the chyle, slip through the lymph vessels at the same time.

The tensional electricity-exciting iron, earth and salt parts therefore diminish in the same proportion that the oxygen-containing blood of the stomach, intestines, pancreas, spleen and liver is insufficient. And since we know that it is the electricity which holds our physical substance together in tension, it is clear that the diminution of the electricity-favoring factors of cohesion always become weaker.

It follows that blood impoverished of calcium and iron contains fewer and fewer red corpuscles upon which the chemical union of the inhaled oxygen depends, according to the physical law that all kinds of gas attach to surfaces. The liquid part of the blood (the serum) does not possess the capacity to absorb oxygen. The blood serum contains, in contrast to the blood corpuscles (which are founded on calcium, magnesia and iron), soda and potash compounds which are *soluble in water* similar to the potash and soda soaps which are also water soluble, whereas calcium and iron stearate are insoluble in water. The liquid

blood albumin, the same as the formed part (corpuscles), is also subject to chemical decomposition. Now the common foundation of our blood albumin, C_{144}, H_{112}, O_{44}, N_{18}, S_3, is formed of 3×6 grape sugar, 3×6 gelatine sugar and 3 hydrogen sulfide in dehydrated state according to the following formula:

18 grape sugar ($C_6 H_{12} O_6$)	=	$C_{108} H_{216} O_{108}$
18 gelatine sugar ($CH_2 CO_2 NH_3$)	=	$C_{36} H_{90} O_{36} N_{18}$
3 hydrogen sulfide (SH_2)	=	$H_6 \quad S_3$
Less 100 water (H_2O)		$C_{144} H_{312} O_{141} N_{18} S_3$
	=	$H_{200} O_{100}$
(as above)		$C_{144} H_{112} O_{44} N_{18} S_3$

In this way our blood albumin molecules represent a full storehouse of tension. By regular breathing of 310 parts oxygen, 144 parts carbon dioxide and 56 parts water are liberated. However, by insufficient breathing, possibly only 54 instead of 310 parts oxygen become effective, which just suffice to oxidize the gelatine sugar into water, carbon dioxide and urea according to the following formula:

2 gelatine sugar	=	$CH_2 CO_2 NH_3$
	=	$CH_2 CO_2 NH_3$
Plus 6 oxygen	=	O_6
Brings the total of:		3 carbon dioxide CO_2 each
		3 water H_2O each
		1 urea $CON_2 H_4$

In this case, no oxygen remains available, and thus appears in the urine of diabetics unoxidized *grape sugar* and *urea,* which for their dissolution attract all the available blood serum, causing agonizing thirst and parching the tissues when the ailment reaches an advanced stage.

In the meantime, the electric brain mass continues to work even when abcesses indicate a partial decay of the connective tissue. Consciousness and judgement often stay clear up to death similar to consumption where the spirit becomes transformed, whereas the body meets its dissolution.

Since the nerve and blood material mutually act upon one another, both will lose in quality when a certain condition lasts for a long time. For diabetic patients I prescribe a nerve salt, $3(P_3, O_5, N_2 H_6)$, to vivify the abdominal nerve activity. A level teaspoonful dissolved in a glass of water should be taken mornings and afternoons until a watery stool results. This should be followed by physiological salt water consisting of phosphates, sulfates, chlorides and carbonates of potash and soda corresponding to the normal blood salts. One-quarter pint to one pint of this 1% physiological salt water should be taken daily.

For the gradual normalization of the blood serum I prescribe calcium-magnesium phosphate twice a day — 1/2 level teaspoonful in a cup of bouillon or salted milk, supported by an easily-assimilated iron preparation to rebuild the red corpuscles which are indispensable for absorbing oxygen.

That diabetes is actually due to inadequate breathing is proven by the fact that it can be produced in rabbits when the center of the breathing nerve is damaged by a puncture of the spinal cord, partially paralyzing it.

The imperfect supply of oxygen in the blood of diabetic patients is chemically recognizeable by their breath having an odor of *acetone*. Normally, each 6 hydrocarbons ($C_6 H_{12}$) as they form a group of fat should become oxidized with 18 oxygen into 6 carbon dioxide and 6 water ($C_6 O_{12}$, $H_{12} O_6$). Instead of this, only acetone is created in part, $2(C_3 H_6 O)$. I have often had the occasion when a patient comes to me to tell him before he says anything, "You are diabetic." Usually he asks how I know it. "I smell it," is my answer.

Plainly, diabetics must be advised to do physical exercises in cool, pure air. In addition, washing the entire body in the evening with diluted vinegar serves to electrify the skin nerves and therefore to revive the blood circulation. The diet must be specially fitted to the patient according to the more or less advanced state of the disease. It is of interest that sour pickles by their content of lactic acid considerably improve the digestive force of the stomach. For the same reason, sour milk or buttermilk in summer has a favorable influence on the restoration of the physical strength of the patient. Lactic acid protects flesh from decomposition, therefore the housewife should put saddle of venison and mutton in sour milk. It is thus understandable that lactic acid limits the specific decay of the blood albumin into urea and sugar.

In Carlsbad (Czechoslovakia) diabetes is cured by enriching the blood through the calcium and iron, soda and Glauber's salt content of the mineral water, whereby bile of a good constituency of new red corpuscles result, which are then capable of absorbing more life-giving air; and through the throwing off of the nerve-paralyzing carbon dioxide from the blood circulation thanks to active walking and climbing, which at home can be replaced by systematic, purposeful deep breathing.

I have found that most of the diabetics come from the ranks of musicians, mathematicians, writers, engineers, building contractors and judges. This means that the thinking processes which monopolize the blood in a certain region of the brain leaves all the less oxygen for the breathing center. Also, musicians must think constantly in order to produce true tones. The drops of perspiration on their faces after a particularly virtuoso perfomance is evidence enough. Therefore, when *thought production* represents a determining cause of diabetes, the reserve of it, according to Hippocratic rule, proves to be a healing factor.

Diphtheria. This children's disease first shows itself plainly by a catarrh of the mucous membrane in the back part of the mouth and in the nasal cavity. Although it is generally brought on by inhaling cold and raw air, it may also be caused by infection like all catarrhs which are characterized by infectious decomposition. It is a peculiar fact that children who eat a large amount of meat and appear to be robust and strong fall more readily victim to this disease, than the weaker-looking children. The cause is doubtless the same as that which causes adults who prefer a meat diet to be more liable to catarrhs than are vegetarians. Lean meat exposed to warm air quickly begins to decay and the products of decomposition possess a poisonous character as the meat contains nearly a quarter of its weight in cyanogen compounds, the remaining three-quarters in the constituents of water. How different in this respect are milk, cheese, eggs, cereals and potatoes, the chemical basis of which is sugar, starch, fat and albumin, and even this albumin though it contains nitrogen is not based on *cyanogen compounds but upon sugar and ammonia.* The cyanogen compounds of meat are produced from albumin *by the chemical separation of water.* Hence, the vegetarian diet in opposition to the carnivorous is recommended for children as a protection against diphtheria.

In the course of these remarks, I have frequently made the statement that all stagnating blood gives off ammonia. The proof of this may be obtained by putting blood fresh from an artery into a saucer and covering it with a sheet of blotting paper saturated with nitrate of mercury. It may then be observed that the paper becomes blackened in the proportion that the rising ammonia separates the black sub-oxide of mercury from the nitric acid.

The case is the same in regard to the blood which stagnates in the capillaries. As soon as the *mechanical* movement of the blood ceases, a *chemical* movement in which ammonia is liberated takes its place, whereby ammonia is set free or at least compounds of ammonia with hydrocarbons, the so-called amines, are formed, as can be demonstrated by creatine in the regrouping of its atoms. (See section *Bacteria Theory.)* A

chemical decomposition of this sort, which even under ordinary circumstances in the case of dead flesh is rapidly infectious, must go on ever more rapidly where the circulating blood carries the products of infection along with it. Hence, the great number of cases of diphtheria which terminate fatally, for the simple reason that the doctor has been called in too late. The poisonous putrefaction of the blood has by that time usually made so much progress that the antiseptic remedies which might have been efficacious at first, come too late. This is the foundation of my statement, that the treatment of diphtheria must be *delegated to the family* and not to the doctor. The course of the disease is much too rapid for a doctor to be summoned, especially in cases occuring in the country where one has to send miles for a physician and where the people, therefore, of necessity must depend on themselves.

The numerous medical theses on diphtheria and its treatment are of no practical value as they shed no light on the real nature of the disease, nor can they, for the simple reason that the authors themselves are not clear about it.

The products of putrefaction formed in the ulcerations of the throat are the only guide in treating diphtheria. Putrefaction always takes place after the cessation of electricity as it is electricity which holds together the inodorous flesh during life. Therefore, by supplying new electric tension we can stop the process of putrefaction. Everything serving to *set electricity to work* tends to effect the cure of diphtheria. The source of all bodily electricity is principally unimpeded circulation. Packing in wet cloths works as electrical excitant upon the terminations of the nerves of the skin, and draws the blood from the regions where it stagnates, thus bringing the stagnating blood into motion (hydropathy). Of still greater efficacy than mere water is vinegar. If the whole body is rubbed down with *vinegar* at the first symptoms of diphtheria (difficulty in swallowing, peevishness, loss of appetite), the patient is immediately brought out of danger. Like all acids, vinegar acts as an electric excitant. Meat can be protected against putrefaction by rubbing it with vinegar, just as cherries, plums, etc., are kept from fermentation by pouring vinegar over them. So we cannot wonder at the protecting and healing effects of rubbing with vinegar in cases of diphtheria. Other factors which are effective in stopping putrefaction and restoring circulation are the aperients such as enemas of castor oil and camomile tea which free the blood collected in the abdominal arteries for purposes of digestion. Also, emetics enable the blood in the stomach walls to take its part in the general circulation, after this organ has been emptied. Calomel, as well, exercises an electrically-exciting effect on the intestines since both chlorine and mercury protect the albumin from chemical decomposition.

Standard chlorine water diluted with four times its volume of water and given every quarter of an hour in a porcelain spoon (silver should not be used as it renders the chlorine ineffective) produces good results. Hydrogen peroxide is a remedy of similar efficacy and should also be given with a porcelain spoon every 15 minutes.

Calcium water painted on the ulcers or taken internally tends to oppose the decomposition of albumin. Similarly, acetate of ammonia has an antiseptic action. Even small doses of half a teaspoonful have a stimulating action on the circulation, shown by the breaking out in a warm perspiration.

Even more remarkable is the action produced by Hensel's Tonic used as a beverage, a teaspoonful in half a pint of water, with four heaped teaspoonfuls of cane sugar. It acts antiseptically and, due to its magnetic iron, as an electric excitant. When children are given a glass of it two or three times a week they have invariably been protected against diphtheria. Hensel's Tonic should be kept in the home medicine cabinet ready for any emergency.

The actual nature of diphtheria springs from a fibrin separation of the lymph and blood sap. This separation (loss) of fibrin is due to the fact that the blood does not contain sufficient quantity of soda salts to prevent the coagulation of

the blood, as these salts have the property to dissolve separated fibrin clots and to liquify them. In the years before artificial fertilizers consisting of potash, phosphoric acid and nitrogen were applied, sufficient soda and sodium sulfate were contained in the vegetables forming our food and in the grass for our cattle. But since the use of nitrogen fertilizer this no longer happens, so that now not even cow's milk has the health-preserving quality it formerly had. So it follows that diphteria in the course of the last decades has claimed numberless victims. One becomes aware of the dissolving and liquifying action of bicarbonate of soda when one treats blood stains in the laundry with it; the coagulated blood dissolves. Or one heats curd (the coagulated part of milk) with water in which sodium carbonate has been dissolved, and the curd will dissolve in it, just as it is well-known that an addition of bicarbonate of soda will prevent the coagulation of milk. But along with the sodium carbonate, sodium sulfate also possessses the specific property to dissolve coagulated blood fibrin. Not more than about 100 years ago, the use of Glauber's salt (sodium sulfate) in the treatment of any kind of inflammation (for instance, of the lungs, pleura, brain, etc.) was a general one and of reliable efficacy, precisely because it dissoved and liquidised the clotted blood in the capillaries, which is the real cause of inflammation. This inflammation phenomenon is easy to understand when one considers that cold makes the capillaries contract so that the blood movement, as a consequence, is slackened. Since, then, new arterial blood ceaselessly follows, it is evident that if the vessel-contracting effect of the cold (this happens, for instance, in a severe east wind) lasts for a certain time, there must occur a standstill of the blood pressed together (stasis). But stagnating blood (motionless blood) is subject to the coagulation process within the arteries in just the same way that blood which has flowed out of the arteries coagulates. The process of coagulation is followed, since organic substance is in constant movement and change (alteration), by chemical decomposition. When such decomposition takes place, ammonia is liberated, having a paralyzing effect on the function of the nerves.

Simultaneously, a physical co-effect of the chemical decomposition is the appearance of greater heat (fever) because along with the decomposition of the protein group as much heat is set free as became united and stored up during the plant growth by the heat of the sun. Inasmuch as a marked increase in the body temperature sets in, one spoke not only of fever heat, but metaphorically, of "inflammation." And in these cases, precisely, sodium sulfate was of outstanding service. Through the absorption by the lymph vessels and the passing over into the blood of a weak solution of sodium sulfate it will liquify the coagulated fibrin with the result that the blood circulation is again set free. It was because of this remarkable property that sodium sulfate was called *Glauber's wonder salt,* after the physician Glauber, who first prepared and applied it. But fashion and propaganda also influence medical science. Sodium sulfate (Glauber's salt) long ago ceased to be fashionable. Many physicians of today hardly know that it possesses fibrin-dissolving properties; they know it only as a cathartic. That it actually acts as such is connected with its use in a concentrated solution because, according to physical law, the weaker solution of salt always moves in the direction of the stronger one and mixes with it. Thus, when a strong solution of Glauber's salt enters the bowels, the weaker salt-containing blood and lymph serum diffuses in the direction of the intestines. Since it cannot be absorbed (sucked up) by the chyle vessels of the intestines according to the above-mentioned physical law, the intestine discharges the Glauber's salt solution, being accompanied in the course of this action by the contents of the intestinal tract. In many cases this is very good, since in this way the digestive channel is freed from excrements, the desirable result being that now the blood in the arteries and veins is no longer compelled to remain there for digestive purposes, but can again

take part in the general circulation.

If we now consider that our blood albumin represents, mainly, a calcium soda sulfur albuminate, and that our normal blood serum, along with such soda which is united with organic acids, contains twice as many sulfates as phosphates, it becomes clear that the blood and lymph albumin tends all the more to coagulation when the content of soda and sulfate salts has become insufficient for maintaining blood fibrin in a fluid condition. And now we are struck by the fact that children, apparently well-nourished and receiving plenty of meat, are likely to become victims of diphtheria, while children apparently undernourished but receiving sufficient potatoes and vegetables in their meals, remain resistant to diphteria. This can be explained only by the fact that in meat almost exclusively phosphate of potash is contained. The small content of sulfate salts in meat amounts to but a seventieth or eightieth part of the phosphate salt, whereas sound blood, as already pointed out, should have twice the amount of sulfate salts as phosphate salts. In contrast to this, the proportion of these salts in vegetables, when they are grown on mountain soil, is much more favorable. As an example, in potatoes you will find 6 parts of sulfur salts against 16 parts of the phosphate, turnips show a proportion of 7 to 11, carrots 5 to 11, celery 10 to 22, spinach 14 to 16, radishes 3 to 5, kohlrabi 11 to 27, cauliflower 10 to 16, cabbage 24 to 14, and horseradish even 49 to 20.

Likewise, nourishment mostly from milk and bread contributes to specific diphtheria fibrin separation, because in milk the proportion of salts is just as unfavorable as in meat (1 to 80). Hence, milk, if not obtained from mountain cattle, can hardly be looked upon as a sufficient food for the first year of life, during which the preponderance of phosphates furthers the growth of the brain, the spinal cord and of all the bones.

As to bread, wheat flour shows the same unfavorable conditions as meat and milk. But oatmeal and barley meal are better, since both of these grains contain about five times more sulfate salts than wheat. Rye, on the other hand, shows but twice as much as does wheat. It is for this reason that barley meal specially prepared was used at one time against scrofula. Since the old Germans brewed beer from barley, it seems that at least in Bavaria the cultivation of barley was preferred to that of wheat, so that barley bread was preferred in our countries just as in the Orient. (In the New Testament account of Christ feeding the five thousand, barley bread is particularly mentioned.)

According to everything mentioned above, the prevention of diphtheria through soups of barley and oats, along with abundant vegetable food, should become possible, as soon as we no longer fertilize our fields with potash, phosphorus and nitrogen, but with new earth in the form of ground primeval rock (granite, gneiss, porphyry) and compost.

One should keep in mind the fact that when a fever attack occurs, it is evidence of a stagnation of the blood somewhere in the capillary region. This stagnation should be counteracted at its very beginning, just as fire should be extinguished right away instead of waiting until it blazes through the house. Unfortunately, in medical science, the latter way is usually adopted. One waits to see first whether gastric fever, or pneumonia, or inflammation of the brain will become evident; and then one goes through the medical books in order to find out what science has prescribed in such a case.

Now, as to the well-known membrane formation in the mouth cavity in cases of diphtheria, it must be looked upon and interpreted as but a single symptom. In reality the elimination of fibrin, once started, lays hold of the whole lymph and blood vessel system, which can be traced back to retarded influx of arterial blood to the extreme ends of the nerve cords. The stagnating blood, by liberating ammonia, is responsible for the paralyzing of the nerve function and this in turn is what causes the characteristic membrane formation.

All salts serve both in a fibrin-dissolving and in an electricity-exciting capacity. The last-mentioned property also belongs to the acids, and this makes it

clear why, at the very beginning of diphtheria, washing the patient's body with vinegar may arrest the progress of the disease. Vinegar, as is known, neutralizes ammonia, which liberates itself from stagnating lymph and blood sap, also in the skin tissue. The electrifying effect of vinegar, according to physical law, spreads, as a result of which electricity is dispersed from the outer nerves of the skin as far as the fine nerve endings which are active in the inner serous membranes. This is because the outer and inner skin were produced from the same part of the embryonal blastoderm, thus forming a coherent unit.

Dropsy. The accumulating fluid in all kinds of dropsy is of alkaline reaction due to ammonia, which gives the clue to the chemical process of dropsy. Whether great losses of blood, chills and fever, indulgence in alcohol, malnutrition or chronic diseases precede dropsy, a faulty constitution of the blood, especially the deficiency of *salts* in the blood, is always the deciding cause. My theory is the following:

All secretions take place under the direction of the nerves, also that of the kidneys. The plexus of kidney nerves originating from the sympathetic nerve contains both sensitive and motor elements, but the sensation is transmitted only slowly and fades away as slowly. This principle can be demonstrated by a mechanical irritation of the intestines of a rabbit just killed. If we scrape across it with the thumbnail, we at first notice nothing at all; but after a few seconds the wall of the intestine contracts at the place touched in a comparatively deep furrow which remains visible for some time. Gradually it disappears again and the intestine regains its former appearance.

All intestines have spiral nerve fibers of the sympathetic nerve running through their walls, somewhat like the wire wound around a violin string; the walls of the blood vessels are built in the same way, so that the property of the vessels to expand and contract is due to the slow perception and slow motion of the nerve fibers, which have their origin in the spinal cord.

This slowness in the function of the sympathetic nerve is due to the fact that it does not spring from its own electric force, but from an indirect source, namely, from the electric current flowing through the adjacent walls of the blood vessels, which excites in the sympathetic nerve branches a secondary or induction current. The electric fluid for the blood vessels is created directly by the salty contents of the blood serum. It may be seen at once that when these salty contents are diminished, the electric current in the walls of the blood vessels also diminishes and, correspondingly, the intensity of the sympathetic nerve function.

This diminished electricity first manifests itself in the *kidneys,* because this glandular organ has the mission to secrete from the blood the urea formed by the oxidation of the tissues. On the other hand, the urea has the property to chemically combine with an equivalent of common salt or of a sulfate or phosphate salt. This explains why the urinary excretions contain *twice* as many salts as the blood. People who are not chemists have thence falsely concluded that the kidneys have the function of excreting the useless salts from the blood. The truth is that the salts in the urine have the purpose of forming double combinations with the urea, which *preserve* it and make it *harmless.*

The natural conclusion from this is that the salts of the blood must be replaced in the same proportion as they leave the body in company with the urea, so that the urea may find enough salts with which it may enter into harmless double combinations. Every shepherd knows that his sheep get sick if they have no salt to lick. The reason for this is that the urine of the herbivores also contains urea wich requires salt in order to form harmless double combinations. Otherwise there arise epidemics among the grazing animals.

If the contents of salts in the blood which flow to the kidneys is diminished, e. g., through drinks poor in salt like wine or beer which dilute the blood, then injury inevitably results. At first, the electric fluid in the capillaries of the

renal arteries is scarcely perceptible, but gradually more and more it suffers a corresponding weakening. At the same time the attractive force of the ramifications of the nerve plexus of the kidneys with respect to arterial blood, and its repulsive force with respect to the venous renal blood, is diminished. This occurs with greater certainty if the urea, arriving in the kidneys with insufficient salts in the blood (keeping in mind its decided inclination for forming double salts), deprives the nerve substance of its needed salt (ammonium phosphate), leaving the remainder as a passive fatty substance (fatty degeneration of the kidneys).

When the latter stage has arrived all help is too late. The dropsy which sets in in such a case is always fatal, because with the stoppage of the function of the kidneys the urea remaining in the blood becomes carbonate of ammonia which paralyzes the nerves and decomposes the blood. Also, the iron of the hemoglobin is separated as an inorganic oxide and thus the capacity of the blood for absorbing the life-giving oxygen is destroyed.

The symptom of attracted water from the venous blood should also be ascribed to such liberated carbonate of ammonia, likewise the content of albumin in the dropsical fluid is explained by the capacity of the carbonate of ammonia to dissolve albumin.

The fact that the *feet* first show the symptoms of dropsy is due to the above-mentioned peculiarity of the nerve fibers of the sympathetic nerve of conducting sensation and motion only slowly. It is obvious that under such circumstances the contents of the capillaries which are most distant from the muscle of the heart (which in great part is woven from the sympathetic nerve fibers), first fall victim to this separation.

For centuries, in this first stage of dropsy, acetate of potash (an electrifying salt) in connection with squills (*Bulbus scillae),* containing an abundant supply of gum-like mucilage which, like all glucosides, are able to supply oxygen, has brought aid. This supply of oxygen is so intensive that smaller animals such as mice and rats which of themselves have a more rapid circulation, after eating squills die of palpitation of the heart, analogous to the fatal effect of chlorate of potash on children.

The use of *physiological salt water,* interchanged with sweetened mucilage of gum and tonic lemonade seems more natural and, according to my experience, proves best. By these means:

1. The urea receives mineral salts for the formation of double salts,

2. The paralyzing ammonia is neutralized by the formic acid in Hensel's Tonic, while at the same time new iron can become operative in organic form, and

3. An internal source of oxygen is presented by the glucoside gum arabic.

Besides *Kali aceticum,* also the mixture of double salts from borax and tartar called *Tartarus boraxatus* can be used with decided effect by allopaths. The effective principles are especially the free acids of the bitartrate of potash and the biborate of soda which neutralize the injurious ammonia. To this should be added the electric chain originating from the common presence of potash and soda salts, and the well-known antiseptic influence of the borate which prevents chemical decomposition. Along with an iron preparation, the use of Tartarus boraxatus for dropsy, the bacillus of which so far has not been discovered by bacteriologists, would be considered to be thoroughly suitable.

Also lemonade acts favorably, supporting the cure, but still better is sugar water with cream of tartar. Both drinks neutralize the injurious ammonia, and the bitartrate of potash adds, besides, the electrifying effect of the salts. In dropsy, the latter effect also ought to be sought externally by daily rubbing the body with salt water, 2 grams (31 grains) of common salt to 250 grams (1 pint), of water.

Finally, we would recommend in dropsy the use of fat because all carbohydrates combine chemically with urea. There is, e. g., ethylurea, ($C_2 H_4$, $CON_2 H_4$), diethylurea, triethylurea and tetraethylurea, and all these combinations unite together just as urea alone combines with one or more equivalents of

acids into salts. The use of sweet oil, a teaspoonful every two hours, with some acidulous beverage (lemonade or sugar water with cream of tartar) rests on a safe physiological-chemical basis. Thus, the further appearance of free urea in the blood may be prevented, and even the carbonate of ammonia which is produced from urea by its taking up one equivalent of water may, by combining with oil, become new gelatine. This also explains why dog fat, which was formerly used as a treatment for consumption (with the idea that it was effective because dogs are never consumptive, while this merely rises from their continual trotting about and breathing) shows decidedly beneficial effects.

With respect to the *origin of dropsy*, the following experiences may help to explain the physiological and pathological processes in their principles:

A man of about 60 drinks a lot of milk during the day, and beer in the evening. The consequence is a bloated abdomen, costiveness, oppression of the stomach, loss of appetite, heavy feet, pains in the calves, rheumatism, dizziness, headache and sleeplessness. The flesh of the calves becomes soft and doughy and he discharges but a little thick reddish urine. These seem to constitute ten symptoms, but in truth only one: lack of salts and iron in the blood, whence the urea accumulates in the blood.

Cow's milk contains but 93 to 108 grains of physiological salts to the quart, while blood requires 123 grains. Beer has merely 8 grains per quart, thus only a 16th part of what is required for the blood. Now, since with every quart of urine 278 grains of salts are secreted, the content of salts in the blood steadily decreases, if, as is usual with those who drink milk, little other food is partaken of. How long, then, will it be before the 62 grains of iron and the 1852 grains of calcium, potash, soda, magnesia and manganese which we have in our blood are exhausted with such a diet? Then the spleen, kidneys, liver, stomach and intestines are weakened on account of the watering of the blood and all secretions cease. The lack of iron causes the blood to be deficient in oxygen resulting in *stagnation* of the blood, which is felt in different parts of the body partly as rheumatism, partly as lassitude, partly as dull pain. In this case the administration of a preparation of iron easily assimilated (every two hours 20 drops of Hensel's Tonic dropped on a teaspoonful of granulated sugar) and 60 grains of physiological salts dissolved in one pint of water daily is beneficial.

How much excessive beer drinking weakens,we see in the cab drivers of Berlin. All of them know where good beer is on tap, so most of them are so bloated and weak that they can only handle the trunks of travelers with difficulty. The Bavarians and Swabians also drink large quantities of beer but they still retain their health. The reason for this is that they are accustomed to eat radishes and salt with their beer. Since *radishes* are very rich in sulfur, calcium and iron these substances which together with common salt are lacking in the beer are supplied to the blood by the radishes and salt.

As with beer, so with wine. A patient told me that he had been in Luxembourg where the wine was good and cheap. So he thought he would indulge himself. But after three months he was not able to stand on his feet from sheer weakness, which, as is well known, is also a specific symptom of alcoholism.

Another instructive example is the following: Once I was traveling on the same train with a young man who told me he was the traveling agent of a wine house. Jokingly I told him: "More people drown in wine than in water." To pass away the time I gave him the physiological reasons therefore. He listened attentively and then confessed to me that his brother, who had owned a wine business and who had died recently, had found it necessary to drink a good deal of wine himself to animate his guests. He however eventually fell into an incredible weakness and his death ensued from dropsy and apoplexy. His blood was quite black. I told my traveling companion that this exactly confirmed what I had said, that the blood had been in the end completely lacking in salty

constituents, in sulfur, calcium and iron. It had therefore lost the capacity for chemically absorbing oxygen which quickens the nerves and for rendering the urea harmless, so that the blood received a venous character, laden with carbon dioxide and distinguished by its dark color. The carbon dioxide which had collected finally burst the walls of the cutaneous veins of the lower thigh which had become weakened and loose through the lack of salt. After a channel had thus been opened the entire venous blood, pressed upon by the accumulated carbon dioxide, swept out in an uncontrollable current. The consequent lack of blood in the brain had to end in apoplexy.

As to the curative treatment in cases of excessive use of wine and beer, it must be remembered that gradually not only all the sulfates and chlorides of the blood are washed out with the secreted urine, but the albumin of the blood, which is essentially an albumin resting on soda and calcium, also suffers a degeneration. The ashy constituents of wines constitute in the most favorable case only 0.4%, thus not even a half percent, and this small quantity of ashes consists of 80 or 85% of potash and phosphoric acid. Thus in wine not only the sulfates and chlorides are lacking, which are necessary for the normal serum of the blood, but also the earthy constituents which are necessary for the new formation of the hemoglobin consumed through respiration. The latter as the vehicle of the oxygen breathed is indispensable in every kind of nerve function, and it must be systematically augmented through the presentation of physiological *earths* while the serum of the blood must be brought back to its normal constitution through *physiological salt water.*

Dyspepsia and Stomach Enlargement. The understanding of hyperacidity in connection with uric acid, as well as stomach enlargement and dyspepsia, are in need of a thorough correction. Uric acid, creatine, sarkin, hypoxanthine are very closely connected and intermingle one with the other; they are the natural and indispensable bases of our muscle flesh. All our body tissues and also the muscle flesh are submitted to a cycle of constant consumption of substance followed by constant renewal, since in these rest the foundation of life and health. Atoms must unceasingly change their places by means of their oxidation into carbon dioxide, water and nitrogen through inhaled oxygen. Where oxygen is lacking in the blood there also exists an overloading of the blood with carbon dioxide which is produced constantly as a consequence of breathing and which increases in the same proportion in which the oxygen diminishes. The carbon dioxide in the warm blood tends to assume the form of gas. As a result, the elastic walls of the veins, forced to retain the blood carbonate, extend objectionably, this occurring in the entire venous system. Since the stomach bag is interlaced by a net of blood arteries, the larger veins now grow as large and as long as they possibly can; but since they are imbedded in the stomach bag, which has to follow the extension of the blood tubes just like a wet hog bladder when one is inflating it, it can become larger or smaller. This, then, is erroneously called dilatation of the stomach instead of lengthening of the veins. Yet this affects the whole system of veins, in particular its part in the abdomen.

Just as a hog bladder becomes smaller again when the blown-in air escapes, the stomach re-assumes its natural volume when the blood is freed of carbon dioxide gas. In dyspepsia (indigestion) we meet the same causes: The abdominal nerve functions cease in the presence of carbon dioxide of the blood just as carbon dioxide gas extinguishes a burning match.

Oxygen is indispensable to the normal functioning of the abdominal nerves and when oxygen is lacking in the blood the digestive juices also become powerless: hence imperfect digestion of food.

Epilepsy. This affliction is mainly due to disturbances in the circulation caused by an insufficiency of oxygen in the blood. The blood circulation depends upon the constancy of the nerve functions put into activity by the attraction of oxygenated blood and the disposal of

blood filled with carbon dioxide. This process is interfered with when there is not enough oxygen absorbed, and this becomes the source of most functional derangements. In epilepsy the vegetative part of the nervous system (the sympatheticus) takes possession of nearly all of the blood at the expense of the cerebrospinal system.

The first step in treating epilepsy is to restore the proper number of red corpuscles to the blood by the use of sulfur, calcium, iron and magnesia trisilicate. To improve the circulation, rubbing the body with salt water, both morning and evening, is recommended. Custom rules our organism so tyrannically that the rubbings must be continued for several weeks before the circulation takes an orderly course. To keep the constitution of the blood and its circulation normal even after an apparent cure has been effected, the patient should continue with the rubbings at least two or three times a week.

A vigorous circulation should be the aim in all chronic affections, not only by rubbing with salt water, but through systematic and powerful inhalation and exhalation of pure, cool air. For this purpose I recommend a simple *breathing exercise*. Place yourself behind a chair, grasping the back of it with the hands. Make a knee-bend, expelling breath at the same time. Then inhale while assuming an upright position. Instead of the ordinary lazy respiration, a vigorous respiration now takes place, much more air being expelled than inhaled. Along with the inhaled nitrogen a certain amount of the carbondioxide gas which has accumulated in the abdominal venous blood is expelled. The cause of this is, that the mechanical pressure due to the contraction of the abdominal cavity by the knee-bend causes the elastic intestines to exercise a considerable pressure on the walls of the large veins, similar to a rubber tube when pressed together. The result is that their contents are forced upwards through the portal vein into the ascending vena cava, thence to the right auricle of the heart and on to the lungs where the carbon dioxide gas contained in them is given off.

Everyone who tries this gymnastic breathing exercise will find that after every knee-bend three inhalations and three expirations of unusual intensity follow each other. It is only then, that breathing returns to normal. Two more knee-bends with the same result and the exercise is finished. In but two minutes the intire blood of the abdomen has been completely renewed, new oxygenated blood having replaced what was there before. The longer the blood remains in the abdominal organs the more completely it gives up the oxygen brought with it from the lungs. More and more it is loaded with carbon dioxide produced by oxidation, diminishing the activity of the nerves, especially affecting the movement of the diaphragm. This causes stoppages in the domain of the portal vein which appear at times as cramp of the stomach, as colic of the intestines or of the gall bladder, and in other cases as hysterical convulsions. When the mischief has gone so far that most of the blood collects in the roomy veins of the abdomen, then we get those disturbances of the cerebro-spinal system that have received the name of epilepsy.

As epileptic fits often occur at night or just before waking in the morning, we must attribute these attacks to the overfilling of the portal system with stagnating blood. Care must be taken to avoid the "fattening cure" which consists of drinking about two quarts of milk daily, which is by far too much. One quart of milk each day should be enough. But considering that the nerves of the intestines require a certain amount of change in order to function properly, it follows that a variety of nutriments should be supplied so that one pint of milk a day in addition to the rest of the diet is fully sufficient. An excess in this direction tends to promote attacks of epilepsy. All epileptics should be earnestly warned not only against excessive milk drinking but against an excess in diet of any kind and especially against *heavy meals at night.*

With the blood collecting in the abdomen, the brain is not only deprived of that amount of blood of which it is usually deprived during sleep, but even

of that amount which is indispensable to produce the renewal of the lymphatic juice which should nourish the brain substance.

When the blood depletion in the brain exceeds a certain degree, the independent proper electricity of the nerves comes into play, which normally is tied in a close circle through the electricity of the salts of the blood and through circulation. Within this cycle the electric circuit returns into itself and is normally not perceived. It is first noticed in the moment when the wave of blood, which forms the connecting link for closing the electric circuit of the terminations of the nerves, temporarily fails. The taking of common salt or bromide of potassium, because this draws to itself water from the contents of the lymph, and the salt water thus produced, increases the quantity of the blood and may ward off an epileptic attack.

However, bromide of potassium is not able to cure epilepsy. This can only be done by the restoration of a well-ordered circulation and a normal constitution of the blood. It has the disadvantage that since it must be eliminated through the kidneys together with the sulfur, calcium and iron which are removed from the circulation at the same time, urine is thereby discharged in larger quantities than before, thus leading to an increase in the irritating factors which cause epilepsy.

In addition to guarding against overloading the alimentary canal with food, epileptic patients should guard as much as possible against excitement and against taking cold. Mental excitement draws the blood to the brain and holds it there for an undue time, interfering with orderly circulation. Colds cause the blood to be pushed away from the external skin, interrupting the proper closing of the electric chain. Let us remember that the nerves of sensation terminating in the skin are connected with the serous membrane *(sensitiva)* of the nerve center by the mucous membrane.

Similar harm is done by dancing and skating, after which the patients frequently succumb to an attack. This may be explained by the centrifugal force, which in a circling body drives the blood to the periphery and draws it away from other regions of the body, so that again in such cases the orderly closing of the electric chain between nerves and blood suffers an interruption.

As common oil burns in the wick of a lamp, so does our nerve oil burn in the fine ramifications of the wick-like nerve fibers, by means of the oxygen supplied by the arteries which originate in the finest capillaries of the lungs.

Owing to the fact that the nerve oil forms a chemical combination with oxygen, throwing off minute portions of water and carbon dioxide as products of *combustion,* the process of combustion in accordance with the law of the conservation of energy is equivalent to the operation of a vast number of small portions of energy, which in their perpetual succession make up the total or "capital" of our vital force. *Our vital force* is thus essentially dependent upon the continuity of the *process of combustion.* If the combustion is interrupted, as for instance by suffocation or drowning, the process comes to an end because the secret of the phenomenon of life is its momentariness. The vital force is *born afresh every instant* by the act of respiration. When the respiration stops the vital force disappears. That is the concept which we must keep firm hold of in this ever-increasing mechanized world! It is the central point from which all our functions may be reached and understood like the various threads of a spider's web from its central point.

The first endeavor should be to restore by means of the administration of sulfur, calcium and iron extending over a number of months, the proper amount of red blood corpuscles in the following manner:

1) Morning and afternoon stirred into a cup of coffee or herbal tea 7½ grains of *calcium-magnesium phosphate* of the chemical proportions corresponding to those of the albumin of the blood and the bones.

2) At noon immediately before lunch 3 to 4 grains of *hematite iron* with about the same quantity of sea salt or common salt in a spoonful of water. The same effect is produced by its first homeo-

pathic trituration (1:10) as the number of points of contact with the walls of the stomach and intestines is increased and the absorption more complete.

3) At night about an hour before retiring 8 grains of *washed sulfur* stirred into a tablespoonful of milk. Here, too, its first homeopathic trituration (1:10) has the same effect as the concentrated substance.

4) Every second day 4 grains of *amorphous silicic acid* (silica) stirred into a cup of warm boiled milk to which a pinch of salt and a teaspoonful of sugar have been added. Instead of silica take magnesium trisilicate.

By means of the *silica* the constitution of the blood is improved in a direction, the importance of which has hitherto been but little appreciated. The ashes remaining from healthy muscle contain at least 2% of silica having the following physiological significance:

1) It makes muscles firm, for it protects them against chemical decomposition, consequently having an antiseptic effect. 2) It warms the blood by isolating and keeping together the electricity imparted by its salty constituents. (An electric current in its effect is equivalent to the production of heat.) 3) As nerve substance contains about the same amount of silica as the albumin in the blood it forms as it were a connecting link between blood and nerves, lastingly preserving the proper relationship between them.

Unfortunately, as far as ordinary wheat flour is concerned this no longer contains a sufficiency of silica. In vegetable foods silica (and other vital minerals) are combined with cellulose and surrounds the grains of cereals as a membranous covering. As this remains behind as bran after grinding and bolting, this source of silica is removed from ordinary white flour, a fact which largely explains the spread of certain modern diseases. Much more favorable in this respect are the various kinds of *millet* giving as much as 1/8 to 1/4 ounce of silica per pound.

Fever. The significant characteristic of fever is that the urine is found to be poor in mineral salts and that when such salts are given the high temperature of the blood is lowered. As a loss of iron occurs along with the loss of salts through urination, the diminished contents of iron and salts in the blood are to be considered the cause of many fever conditions. Also, salts and iron cure a great many diseases which accompany fever. Let us now examine what processes take place in fever, whence ague comes, and how high temperature originates.

A shaking chill or ague is the vibrating of the external or the internal membranes of the body, or rather of the nerve fibers terminating in the external or the internal membranes. It is caused by the intermissions of the arterial wave of blood which should close the *electric circuit*. It can be brought on by a) a cold, causing the flowing blood to recede from the nerve endings due to the narrowing of the capillary vessels, b) an intense emotion, c) a positive lack of blood causing certain portions of the organism to be deprived of arterial blood, e. g., the external skin or the mucous membrane of the intestines, d) the spleen, or e) the liver. In every case ague is, in the first stage, a sensation of *cold,* and after a certain interval the sensation of *heat* follows.

Now, what can be the origin of the cold? It is the combustion, i. e., the oxidation of nerve fat, which has ceased in the respective region from lack of oxygenated blood. Without combustion there can be no warmth.

But where does the heat come from which follows? Is there an increased consumption of nerve fat afterwards? This is not the case as heat has quite another source. It is the same cause as that in operation when the contents of the mashing vat become warm, when the grape sugar splits into alcohol and carbon dioxide because the liberated force which conserves alcohol and carbon dioxide in the form of sugar now appears as converse electricity, i. e., electricity operating in a changed direction, thus as *warmth*.

Our blood is also heated when a fermenting disintegration of the albumin of the blood takes place after partial *stagnation* and ammonia is released. The chemical nature of the disintegration

products of the blod albumin may vary greatly, according to the organ chiefly involved. As in the normal, so in the diseased state. At present these chemical products of the disintegration of albumin are characterized by many physicians as organisms standing between the fungi and the algae. On one hand they are called bacilli (bacteria) if they have the shape of little rods, on the other hand, cocci if they have a globular form. From the fact that certain combinations of aniline have the form of bacilli and others that of cocci, taken in connection with the chemical fact that the coloring elements of the bile are also combinations of aniline, it follows that all bacilli and cocci belong to the general category of disintegrations of albumin allied to aniline, and of these each gland produces its specific kind.

If chemical decomposition of a special kind takes place, fever then takes on a specific character which causes it to be called scarlet fever, gastric fever, typhoid fever, hectic fever, etc.

Certain elemental parts of the substance of the blood or of the flesh are always found in the urine, particularly urea and ammonium urate. These give clear proof that the cause of fever heat is found in the electrolytic disintegration of albuminous substances. But this knowledge also gives us the means of putting a stop to the fermenting disintegration and of healing the whole disease along with the fever.

A universal remedy in this sense is *vinegar.* As it protects meat from decay and putrefaction because it enters into a chemical combination with the gelatine sugar of the albumin, so also is its effect on the human body. Sugar water mixed with vinegar is a remedy recommended in every kind of fever. It guarantees at once by its cooling effect that the processes of fermentation, which presuppose a certain amount of heat, are stopped. *Lemon juice* or *hydrochloric acid* in a glassful of sugar water is sufficient.

Even more effective is *physiological salt water* in which sulfates, phosphates and chlorates form an electric chain of potent activity, conserving and bringing into renewed activity the electricity which is about to disappear. Give the fever patient physiological salt water, in which 120 grains of the salts are dissolved in one quart of water. It quenches the thirst, moderates the heat, electrifies the intestines, the walls of the arteries, veins and kidneys and stops the fermenting decomposition of the blood albumin. The essential point to be observed is the dosage, 120 grains to a quart of water, such a proportion corresponding to a certain degree with the contents of salt in the human blood. Therefore it also operates as a *blood transfusion,* giving vital power without introducing foreign substances into the blood as is done by administering quinine, strychnine, arsenic, antipyrine, etc.

Vinegar and water or salt water as a beverage are of course not sufficient to produce a cure when diseases like disintegration of the blood are to be removed, which appear accompanied by fever, e. g., in malaria and yellow fever. In these affections we must supply a substitute for the hemoglobin which absorbs oxygen and which has been destroyed in considerable quantity by the ammoniacal and cyanic products of the disintegration of the stagnating blood. This substitute is afforded in physiologically correct manner by the formate acetate of the sesquioxide of iron and calcium (see *Diphtheria* and *Inflammation* sections), i. e., Hensel's Tonic.

The swelling of the spleen and liver in fever is due to overloading the blood with carbon dioxide and is accompanied by bilious vomiting. Carlsbad salts (from the spa in Czechoslovakia) deserve preference over calomel and aloes, but above all Hensel's Tonic is preferred as it produces the normal secretion of bile and frees the liver and the spleen.

Practical observation has brought on the realization that no one substance in itself will suffice. Tonic lemonade and physiological salt water should both be used. If physiological salts are not readily available, artificial Carlsbad salts may be used as this also contains sulfates and chlorates of soda. It operates not only by electrifying but also by protecting the blood from putrefying decomposition, while the tonic lemonade enables the

blood to hold chemically the oxygen inhaled. This secures the normal function of the abdominal nerves and keeps up the circulation in the diaphragm through which the blood is freed from carbon dioxide which paralyzes the nerves. These two beverages contribute to keeping the liver, spleen, stomach and intestines capable of normal activity, and at the same time assist the orderly function of the kidneys. The result is that the urea eliminated by the oxidizing respiration is quickly removed from the circulation before it becomes *carbonate of ammonia* through a longer stay in the blood channels, thus crippling the power of the nerves and poisoning the blood.

The following is a *summary* of the means of protecting against climatic fever:

1. Counteract the internal overheating and the decomposition of the blood by cooling beverages which keep up the function of the kidneys.
2. Emancipate ourselves in part from damp atmospheres, which conduct away electricity, by the internal generation of proper electricity (motion and respiration).
3. Supply the blood with the material which will enable it to absorb the nerve-quickening oxygen.
4. As soon as ammonia appears from the stagnation of blood in the spleen or the mesenteric vein, which manifests itself by ague, the ammonia should be rendered harmless through acid drinks, thus quickly stopping the progressive chemical disintegration of the blood albumin.

These four conditions are satisfied in a sensible manner by physiological salt water and tonic lemonade. However, other factors may also have their prophylactic uses.

Abstinence from *alcoholic beverages,* because these deprive the blood of oxygen, and avoiding *emotional upsets* and excitement, as these predispose to stagnation of the blood in the region of the portal vein, are good rules of hygiene in tropical countries. Another maxim of experience is that we should not live too near the water in the tropics if we do not want to subject ourselves to fever.

As far as food is concerned, a vegetarian diet is decidedly preferrable, at least during the hot season. On the other hand, a warming meat diet during the rainy, cold season is a preservative of health and is even essential in recovery from fever. This may be explained in part by the fact that lean meat contains iron, as $3^1/_2$ ounces of meat contains 0.04 grains of iron, and therefore meat supplies the material for new hemoglobin.

Gallstones. The partly-oxidized fat substance cholesterine, just like ordinary stearine of crystalline texture, shifts itself scale-like over each other, as a result of slower blood circulation within the liver, finally forming round lumps which obstruct the fine network of anastomotic bile ducts. Fortunately, the bile ducts unite in order to form a larger tube of 4 to 5 mm. diameter leading into the liver channel, which in turn pours the bile out into the duodenum. From this anatomic condition it becomes understandable that the cholesterine lumps bearing the name of gallstones because of their hardness, can be forwarded by the liver into the intestinal duct, if, by repeated doses of natural turpentine oil which mixes with the blood and in this way also reaches the liver arteries, it softens and dissolves the stearine lumps at the surface. In this way they become slippery and glide forward to the bile duct exit. But this does not prevent the formation of new gallstones, which retard the blood circulation and cause pain. Therefore, it is important to obtain a complete oxidation of the fat substance of the blood into carbon dioxide and water by deep breathing, so that non-oxidized cholesterine cannot accumulate. This special mission is the work of the minute blood discs. But whenever gallstone suffering is experienced the number of red blood corpuscles has fallen below the normal proportion and one must endeavor to secure a greater number of them through formation of new ones.

For that purpose sulfur, calcium and iron preparations, united to blood salts and silica will be of benefit. Since these salts are lost daily through the action of the kidneys it is advisable for those with a propensity to gallstones to continue

indefinitely taking the above salts and earths. By doing this the blood obtains the suitable alkalescence enabling it to hold the inhaled oxygen properly and to produce at the same time alkaline bile. In such an alkaline bile soap any possible cholesterine remains as a fine emulsion and the accumulation of large lumps is avoided.

Hemorrhoids. Take every morning immediately before breakfast a dose of washed sulfur, at noon before lunch a dose of hematite iron, and in the evening before retiring half a teaspoonful of nerve salt 3 ($P_2 O_5 N_2 H_6$) dissolved in a glassful of water. Use the simple gymnastic breathing exercise as explained in the chapter on *Epilepsy* three times a day and every morning the body should be rubbed gently with salt water. Alcoholic drinks, smoking and sedentary occupations are injurious.

Inflammation. *"Medicus curat, natura sanat."* The physician has only to take care that nature may be put into a position to exercise her healing power.

Let us remember that anatomical studies have taught us the way in which the whole vascular system coheres as an integral unit, and that under normal conditions the blood passes from the aorta to the capillaries and thence through the venous system back again to the heart. With such a simple phenomenon the possibility exists to remove the stagnating blood from the epithelium enabling fresh, healthy blood to take its place and thus to act in a curative manner. It is this fact which has enabled the naturopaths to work seeming wonders with their hydropathy (treatment of diseases by use of water, internally and externally) since they employ the whole surface of the body as a temporary reservoir for the blood.

I wish to draw attention to the powerful reservoir of electricity which is at our disposal in the surface of the body, provided that we bring the nerves of the skin into action, which is useful in all cases of stagnation and inflammation of the blood. Both acids and salts act as electric excitants. Instead of vinegar, salt water, made of one teaspoonful of salt and one-half pint of water, may therefore be used for rubbing the skin, in cases of inflammation.

Our skin is the region where the electricity of the body naturally accumulates as its nature is to collect at the terminations and on the surfaces of conductors. Faraday had a hemispherically-shaped chamber constructed of wood covered with tin. Then he placed himself inside while powerful electrical discharges were made into the tin from without by his assistants. As he had foretold, he could not feel any effect of the electricity whatever, as it all clung to the surface. Whenever inflammation has set in in the epithelium the natural state of affairs has become altered to some extent. It is true that electricity, as before, obeys the law of operating on the surface, but the operating, attracting and excited surface has in this case become the *inner* serous coating. This is especially the result of colds, since the nerves require a certain amount of heat to enable them to function electrically and thereby to attract the blood. If this necessary degree of warmth is withdrawn from the superficial nerves of the skin by changes in the weather, which is frequently the cause of inflammation, the blood passes to the *interior* surface, where the nerves still retain their power of attraction. But as in this case the considerable quantities of blood which were formerly apportioned to the whole *exterior* surface are now crowded together in the small space of the interior serous membrane, stagnation, overheating, and inflammation must necessarily result.

Inflammation is the term employed as the increased temperature is noticed by the patient himself. Also, as in the case of scarlet fever, because the nerves of the epithelium are paralyzed, the congestion of blood takes place on the outer surface and the rise of temperature may be measured directly with the thermometer. The peculiar nature of inflammation is to be found in *the coagulation of the fibrin,* which is the result of overheating of the blood and which has the effect that the capillaries in which this takes place become narrowed, and so oppose a resistance to the free passage of the blood, from which further distur-

bances follow.

At the start of such inflammations a *proper redistribution of the blood* can be effected by rubbing the body with vinegar or salt water, thus putting a stop to a further spread of the disease. Wet packs, which increase the electricity through difference in temperature, also produce beneficial results. Both methods of treatment relieve the congested region of its excess blood, and the coagulated fibrin is granted time by taking up water to be reconverted into albumin which is then carried along in the circulation and put to use in the organism. The dissolution of the fibrin is facilitated by water containing Glauber's salt or physiological salt water, which is of great value in all cases of inflammation.

Applying ice as a treatment for inflammation is in many cases harmful and even fatal. The attempt to draw the superabundant blood to another place by icy cold paralyzes the nerves. The congested blood is then not drawn into the general circulation, but is merely driven into the capillaries at a short distance from where the ice is placed due to the mechanical contraction of the capillaries through cold. While the cold operates and the paralyzing action of the ice on the nerves is continued, no bad results are perceived, but as soon as the ice is removed the coagulated blood begins to decompose and poisons the rest of the blood in the body.

Another factor in the cure of inflammation is *bed rest,* allowing the blood to flow normally and so to dissolve and carry away any harmful deposits. Bed rest means keeping the surface of the body at an even temperature, thus effecting an equal distribution of the blood, especially when combined with drinking *hot herbal tea.*

In the case of inflammation of the lungs the fibrin deposited in the fine capillaries is more easily dissolved in a horizontal position. The heart is then not obliged to overcome the pressure of the vertical column of blood in order to reach the apex of the lungs. Thanks to the solvent capacity of the blood serum, particularly when it has its normal content of salt, inflammation of the lungs may be removed in seven to nine days without using any other remedies, if the patient is put to bed early enough. Bed rest enables him to eject the dead terminations changed into mucus with the assistance of compressed air through the bronchial tubes. Therefore, a certain amount of rattling in the throat towards the end of the eighth or ninth day is by no means a sign of aggravation, but in reality the beginning of recovery.

For older people whose blood has gradually lost part of its sulfur, iron and calcium and consequently is diminished in its power to absorb oxygen, and from loss of salts in the blood has lost part of its electrifying capacity, the result is more often fatal. A change may be effected in this respect by more general use of physiological salt water through the solvent action of the salts.

Leprosy and Diabetes. The ashes set free in the physical combustion process are dissolved in the blood serum. Together with the urea, they are removed by the kidney function as urine, whereas the gases of the combustion products carbon dioxide and water vapor are exhaled through the lungs. With the discharged urine a respective amount of mineral substance leaves the body at the same time in chemical union with the urea because it possesses the same combining power in bases, acids and salts as in the gelatine substance, which is its origin. In the interests of suitable nutrition it is important that the body is supplied not only with protein (i. e., the nitrogenous hydrocarbons) but kinds of protein which are rich in minerals which include the full range of minerals for wholesome nutrition. Among the minerals necessary for the formation of new lymph juice and blood the *sodium* compounds play an important part. Carbonate and sulfate of soda (Glauber's salt) keep the blood albumin liquid and protect it from coagulation; sodium sulfate can even dissolve fibrin which has already coagulated and liquify it. Normal blood albumin is, aside from sulfur and iron, essentially a calcium *soda* compound. This fact is important in understanding hardening of glands which occurs during the first stage of leprosy due to a fibrin

secretion in the lymph vessels. Since such gland hardenings can be cured by drinking natural mineral waters containing sulfate and bicarbonate of soda (for instance, Carlsbad), it follows that the use of a solution of 8 grams of salt mixture consisting of 50 parts dehydrated sodium sulfate, 20 parts sodium bicarbonate and about 30 parts sea salt, dissolved in a quart of water as a beverage will prevent the occurrence of leprosy.

That such a one-sided and insufficient food as rice will cause gland hardening can be explained by its small content of *protein* and also by its small content of minerals. Its content is particularly deficient of sodium salts which keep the blood albumin liquid, preventing it from spontaneous coagulation.

The protein content of rice is about 6%, whereas that of wheat is about 12%. In the same proportion are the minerals of both kinds of grain, that is, wheat contains twice as many minerals as rice. A kilogram (2.2 pounds) of rice contains only 8 grams of ashes of which nearly two-thirds are phosphoric acid, about one-fourth potash and soda and about one-sixteenth calcium. (See *Ground Rock Fertilizer.)* Since a small part of the food which wanders through the digestive tract is assimilated, while the larger part is being chemically decomposed but is not used for the formation of lymph and blood and leaves the digestive tract, it becomes understandable that rice eaters especially, form the main contingent of lepers.

Next to the sodium salts which keep the blood protein liquid the content of calcium in our food is of decisive significance in the formation of new blood protein. Without calcium the blood albumin cannot exist, therefore when our nutriments supply no calcium the blood takes the needed calcium from the bones through the vessels in the same proportion as the calcium parts are continuously secreted by the kidneys. In this way gangrene of the bones during the latter stages of leprosy is explained, analogous to the gangrene brought on by diabetes. Without calcium no healthy blood can exist, so when the calcium of the bones is dissolved and the remaining cartilage has been deprived of its chemical union and decomposes, it develops the same corpse odor which is characteristic of decayed meat. The same decomposition odor is attached to hollow teeth when due to qualitative anemia the teeth arteries have absorbed the resistance-providing calcium so that the remaining gelatine substance falls prey to decomposition.

Pellagra, which has many similarities to leprosy, occurs among people living mainly on corn (maize) and can be explained by a deficiency of plant protein in the corn together with a deficiency of calcium and soda. One kilogram of corn contains 0.3 gram calcium, only 0.1 gram soda and, what is as important, only 0.04 gram sulfur, whereas on the average each day a sixfold quantity of sulfur is eliminated with the urine (about 25 centigrams) corresponding to 66 centigrams of sulfuric acid united with about 40 centigrams of soda.

Without sulfur no blood protein, without sulfur no bile necessary for digestion. Rice almost totally lacks sulfur, therefore in a nearly exclusive rice diet the new formation of normal blood protein is impossible. Then the connective tissue is oxidized but not replaced because it lacks the qualitative and quantitative suitable plasma.

Calcium too plays an important role. Of what little durability is, for instance, the flesh of fish. Codfish, salmon and halibut have no bones, no calcium phosphate, only cartilage. For this reason people living exclusively from fish on the shores of northern Europe are plagued with leprosy, but when given hospital care they get a balanced diet and become healthy again. Leprosy is neither a hereditary nor an infectious disease, it is only the consequence of deficient nutrition, the same as diabetes. According to what the food contains, not enough soda or not enough iron or not enough calcium or sulfur, the forms of leprosy and the intensity vary widely.

Those people who live mainly on rice, such as the natives of India, but who also eat onions which contain in one pound about 8 centigrams of sulfur, resist leprosy more successfully.

Without question, according to the results of findings of physiological chemistry, calcium, soda and sulfur are indispensable minerals for the new formation of normal chyme and blood. But they alone still do not provide sufficient protection against abnormal decomposition of protein because *iron* is highly essential to the blood and our nutriments. The *blood circulation* depends upon the chemical union of *iron* with the inhaled oxygen, which involves the electric tension of the nerves and it is this electric tension which as long as we breathe deeply prevents wasting and putrid decay of our bodily substance. In this way, the oxidized material is being replaced in the same way as an army general supplies his decimated batallions with additional troops during a battle.

That the lack of iron in the blood plays a decisive role in leprosy is proven by the numerous *white spots* on the skin which manifest an impoverishment of iron-containing blood pigment and upon whose appearance leprosy is recognizable in its first stages.

The daily loss of iron secreted by the kidneys in the form of urea-iron oxide (urohematine), which takes place, amounts in our climate to about 4 centigrams or to about a hundredth part of the total iron content of the blood mass of an adult. That amount must be replaced in order to permit the formation of new normal blood protein. This can be done by eating meat and eggs, but not by an exclusive diet of rice and fish. Roastbeef-loving Englishmen are thus spared from leprosy because the creatine of the beef supplies new gelatine sugar and the ashes of the beef contain about 1% iron oxide. Similarly, the nutritional value of eggs, which provides the blood with sufficient sulfur in this way supplements the meat lacking in sulfur.

The Indians who can afford milk and eggs and a variety of vegetables stay healthy amidst the poorer class afflicted with leprosy.

Diabetes gives us an instructive example of how the tendency of gelatine substance to chemical decomposition can be checked because it is proven that it can be cured by the mineral waters of Carlsbad. In proportion to the larger amount of urine discharged, diabetics also lose a greater amount of urea. It can be double the average amount, rising up to 60 grams. The burden for it is carried by the gelatine of all the tissues. Urea, being a combustion product of gelatine sugar, is united with as many minerals as leave the organism, because they belonged originally to the gelatine sugar. So it is clear that in all parts of the body the firmness and relative durability of the tissues, which depend upon their mineral content, will diminish in the same measure as are the minerals expelled from the body. Once the gelatine sugar (glycocol) of the bile substance has sufficiently combined with the minerals of the Carlsbad water (calcium, iron, silica, magnesia, sodium fluoride, sodium sulfate and carbonate) new normal blood protein is formed. Of course, when the patients return from Carlsbad and eat only meat and eggs without the use of minerals of which the Carlsbad waters are so abundant, then the diabetes reappears. In our climate it is the consequence of unsuitable nutrition and a modified leprosy ensues claiming an increasing number of victims.

With regard to the protective remedies which are needed, we can observe as a general rule that a certain wealth of minerals makes all organic forms more durable. For instance, fir trees which leave but 2 per thousand ashes are very easily subjected to fungus, whereas the oak containing three times as much ashes efficiently resists decay. In an analogous way a strong bone structure guarantees physical efficiency. The degree of resistance ability of the blood of mammals against chemical decomposition, i. e., disintegration, decay, putrefaction, presumes in good part the right amount and kind of physiological minerals.

The mixture proportion of the participating minerals in accordance with the parallelogram of forces, requires a definite result, which appears as a specific form or shape with peculiar functions. Nerve substance contains different minerals than muscle flesh and therefore their forms and functions are different. Likewise is the heart, the lungs, the

kidneys, the liver, the stomach, the pancreas, each has a different form and each organ has a different function. If the supplementing minerals are lacking, the structure varies including the form and the function. Swelling, hardening, fatty degeneration, cancer and ulcerous decay are the result.

Leprosy as the consequence of an exclusive diet of rice, and ulcerous decay as the result of lack of minerals, can be proved by calculation. Even with a minimal daily discharge of 6 grams of urea, a replacement of 24 grams of protein are needed, which would require 400 grams of rice, assuming that the total amount of the starch and protein would be assimilated by the digestive system, but which is not at all the case. And since, in addition, rice nearly totally lacks iron and sulfur, we understand the natives of India and Madagascar eat unusual quantities of rice, so that the putrefaction of the connective tissue in the form of leprosy claims its victims year in and year out. It is impossible to eliminate this form of disease from the world as long as *poverty* and *ignorance* about the chemical processes of life has not been eliminated. One should be able to supply the people with more milk and eggs in order to replace sulfur, calcium, iron and soda in the same measure as these minerals have been expelled by the kidneys.

Milk and eggs are produced in the animal body from transformed plant food, but by no means is this animal detour needed to obtain these, because they are found already perfectly completed in the plant kingdom. There are plenty of plants which lay milk-containing eggs, for instance hemp and poppy. Their seeds are eggs which contain at the same time condensed fat and milk rich in protein and which similar to almonds ground with water supply genuine plant milk, if we consider the characteristic property of milk containing plenty of fat, sugar, protein and phosphates. For the cure of leprosy the poppy seed merits our particular interest.

Poppy seed contains nearly an eighth part of dry *plant protein,* which equals the fivefold amount of liquid eggwhite so that one pound of poppy seed has as much nourishment as 5/8 pound egg protein. Further, poppy seed contain nearly half its weight in oil and almost a quarter of its weight in pectin, a substance similar to gum arabic whose food value equals sugar. Therefore, the food value of 500 grams of poppy seed is made up of about 60 grams of dry plant protein, 250 grams fat and 120 grams carbohydrate. Herein the minerals united with the poppy seed are of particular significance. They amount in approximate numbers for each kilogram (2.2 pounds): 3 1/2 grams potash, 1/4 gram soda, 9 grams calcium, 2 1/2 grams magnesia, 8 grams phosphoric acid, 1/2 gram sulfuric acid and 1 gram silica. Thus for the poor population poppy seed as a food is of peculiar significance for its considerable content of blood- and bone-building calcium. Since ancient times poppy seed has been used in Persia as an addition to flour in baking bread and those who consume it do not know leprosy. Also in Germany pastry fillings are often made with poppy meal. Such popular habits undoubtedly have contributed much to the health and intelligence of many of the country children.

We originate from the Caucasus the same as the Persians. Compare the intelligent well-formed face of a Persian with the dull facial expression of a leper. The genuine truth is always at hand. Correct nutrition accomplishes nearly everything.

The most important nutritive substance we need is the *air* which we breathe. If necessary we can live for days without eating but not two minutes without air to breathe. Therefore, air, particularly *cool air is our most important source of vitality.* This is of special importance in treating both diabetes and leprosy. In India breathing is reduced, because the high atmospheric temperature diminishes the necessity of warming the body through oxidizing breathing. Breathing is diminished from other reasons in our moderate climate, mainly through a sedentary way of living, so that persons doing office work make up by far the largest contingent of diabetics. In a sedentary life the vigorous rhythmic lifting and lowering of the diaphragm is lack-

ing. To the diaphragm are attached liver, spleen, kidneys (the kidneys indirectly through the medium of the so-called kidney capsules) by means of folds in the diaphragm. When the diaphragm movement is weak it follows that the renewal process of the blood is weak, namely, the regular flowing of the arterial blood and the returning of the venous blood. In other words, slow blood circulation causing real blood stagnation in the spleen, liver and kidneys must be the consequence. Stagnating blood is subject to chemical decomposition, similar to the fermentation process. As sugar during fermentation decomposes into alcohol and carbon dioxide, so the blood protein can chemically decompose into sugar and urea.

If by strong lifting and lowering of the diaphragm and its subsequent expansion and through compression of the liver glands the flow of the arterial blood is stimulated and the venous blood is promptly forwarded onward, then the sugar of the blood protein is totally oxidized into carbon dioxide and water. A considerable source of vitality thereby results, because 180 grams of sugar need 192 grams of oxygen for its complete combustion. Furthermore, the carbon dioxide gas of the liver veins and the portal vein blood are pressed into the upper vein by the lowering of the diaphragm, causing a compression of the liver and in this way is driven to the right side of the heart and to the lungs, where it is orderly exhaled. However, from the accumulation of carbon dioxide in the liver the function of the liver nerves are diminished accordingly, because all forms of *nerve functions* depend on the chemical union of the blood oxygen with the fat substance of the nerve material.

In the same way that the burning candle extinguishes when it is dipped into carbon dioxide gas, so the nerve functions extinguish in blood overloaded with carbon dioxide. (Carbon dioxide paralyzes the nerves.) From the aforesaid proportion (180:192) it follows that each gram of insufficiently inhaled oxygen leaves about an equal amount of sugar unoxidized. Thus we understand very well why a simple mountain climb alone removes the symptom of sugar secretion, because the blood sugar then becomes completely oxidized. However, in most cases, sedentary living habits are not the only cause of a diabetic disposition, although the decisive factor in each case is an *insufficient inhalation of oxygen for the blood.*

In addition to insufficient nutrition, there are further factors involved in the cause of diabetes and leprosy. 1) *Excessive tobacco smoking.* The ammonium cyanide of the nicotine enters into chemical union with the hemoglobin of the blood which is no longer capable of absorbing the inhaled oxygen. 2) *Habitual consumption of alcoholic beverages.* It is chemically the same, whether alcohol burns in an alcohol lamp or in the blood. For its oxidation into carbon dioxide and water it needs *oxygen,* therefore when supplied to the lymph vessels and to the blood it absorbs a corresponding amount of oxygen from the blood. (Forty-six weight parts of alcohol consume 96 weight parts of oxygen.) The nerve functions are diminished in this proportion, while at the same time out of 46 parts of alcohol 88 weight parts of carbon dioxide gas result, which paralyze the nerves. 3) *Continuous chilling of the skin.* Thereby the pores tighten, even close themselves (symptom dry skin) and no longer take part in the perspiration of water vapor and carbon dioxide. Since the lungs cannot perform this function, the main work of water secretion must be done by the kidneys. (Symptom: excessive increase of urine discharge.)

In proportion to the accumulation of nerve-paralyzing carbon dioxide in the blood, the nerve ramifications of the spleen, liver and kidneys do not attract enough reviving oxygen-holding arterial blood. The pancreas is in the same condition. The result is, that a weak secretion of digestive juices is produced, especially bile and pancreatic juice. From now on less and less of the minerals necessary to build new blood, are extracted from the food, in particular not enough sulfur, calcium, iron, soda, and silica compound. And these are the ones

which make the blood protein resistant to chemical decay and are indispensable in building new red blood corpuscles, to replace the consumed ones.

All the above-mentioned minerals are found in the hot mineral springs at Carlsbad, which explains their healing power. If the disease is not properly checked the deficiency of minerals becomes so great, that the gelatine substance of the blood protein and bones chemically decomposes and putrefies. This condition is known as gangrene. Then first a toe, then a foot, and eventually a lower leg is amputated because we must remember that the vessel system and the connective tissues form an integral unit. Therefore, the amputation of the leg of a diabetic is the beginning of the end. The ammoniacal decomposition products of the blood protein and connective tissue protein evidently paralyze the nerves, even the cerebral nerves. The patients gradually lose their sense of feeling and consciousness and go into a coma.

Emotions and mental stress (the first because they reduce the intensity of breathing, the latter because they lead the bulk of the arterial blood to the brain at the expense of the abdominal nerve functions) also tend to bring on diabetes. Always there is insufficient oxygen in the blood which does not circulate to the glands.

The curative treatment consists of the following:

1) Relieving the blood of the carbon dioxide gas by a neutral ammonium phosphate 3 ($P_2 O_5 N_2 H_6$) (morning and afternoon $^1/_2$ teaspoonful dissolved in half a glass of water). This preparation has an electrifying effect on the whole abdominal nerve system, causing it to exercise an attraction upon the arterial blood.

2) Systematic building of new red blood corpuscles through the use of Carlsbad water containing physiological earths and salts or a preparation composed of those listed at the end of this section.

3) Reinvigoration of the perspiration ability of the skin by rubbing the entire body with a dry cloth or a wet sponge morning and evening.

4) Strict abstinence from the use of tobacco and alcoholic beverages.

5) Twice daily, half-hourly walks in the fresh air, suitably clothed.

Morphine Habit. The nerves, when once they have lost their sensibility through a narcotic, call for a repetition until the correct physiological means of tranquilization is given them by a normal circulation. Rubbing the body with salt water, Hensel's breathing exercises (see page 205) and a daily glass of tonic lemonade and physiological salt water, supported by the use of calcium-magnesium phosphate and washed sulfur, gradually remove the morbid craving for *narcotics*.

Nervousness. Every day God makes the sun rise in the morning and set in the evening. As long as we are exposed to the rays of light the nerves strive for action, but when the sun has disappeared from the heavens they desire rest. This natural law of living has been observed since the time of Adam and Eve, but by means of electric light we now turn night into day. During the day our nervous system is moved, not only by whatever takes place in our nearest surroundings, but the newspapers, etc., take care that the calamities in all cities and countries of the earth occupy our thoughts. All the distractions of modern life prevent our nervous system from taking rest. Men desire to accomplish more than in former times and even against their will they are drawn into the general whirl of restless activity. The surplus of outside influences causes a constant vibration of the nerves. Man cannot withdraw from this. I therefore know of no other remedy for nervousness but the peace of nature. Out into the country! Out to the mountains! In addition, a palliative is afforded by a dose of 8 grains washed sulfur, further, physiological salts and earths.

Nervousness is connected with qualitative anemia, that is, the blood has not sufficient sulfur, calcium, iron, soda and silica.

Thus, in all cases, the deficiency of mineral substances in the blood, is evidently the basic cause since, if administering certain minerals does away with the pathological state, it is obvious that it is precisely the lack of these mineral

substances which has caused the said condition. This, then, makes it most desirable that one should offer to the body, in suitable proportion, in an easily-assimilable combination, as a health-maintaining, regulating remedy, all the mineral substances the organism is in need of, as a harmonious completion. This purpose is fully met by the physiological earths and salts as listed on page 243 and plant food grown *biologically*, namely, with compost and ground rock as explained in this book.

Further, there are nerve-calming teas such as melissa balm, peppermint, anise seed, caraway seed, fennel seed, all of which are proven home remedies.

Progressive Degeneration. History teaches us that nations in former times, after a period of striving upward, gaining success, and developing might and power, went into a period of decline. If one examines the causes which led these nations, finally, to ruin, the attentive investigator will doubtless realize that even though once of high vitality, they little by little lost their strength through a modified, negative standard of life. This was due to the progress in culture and power, and also partly to taking over and submitting to debilitating habits and vices from the degenerated nations they had conquered, until they also, mastered in their turn by stronger nations, declined more and more. Through this natural development many formerly strong nations disappeared completely from our planet.

The main cause of the loss of power of whole nations was, in the first place, enervation, the gradual physical and moral weakening through luxury and indolence, until they were too feeble to make an effort, and this with the influences mentioned above, from generation to generation, increased in extent and depth and inevitably had to bring about fatal consequences. Only a sound nation with a *strong nervous system* can develop and maintain for a long period strength and power; it is a well-known natural law that the weak must succumb to the stronger.

The significant fact cannot be denied that even in strong nations of the present, deep and radical influences may become dominant, destroying nervous power and resistance, so that many nations may be thoroughly weakened and brought to the brim of decay and annihilation.

Although in modern times we face debilitating factors in all fields of human activity, the claims on our brain and our nervous system have grown enormously. These pressures on the nervous system, hence, have not remained without detrimental consequences, and already they have brought about a steadily progressing decline in the physical strength of many nations of our time. With the steadily progressing culture and the proportionate refinement of enjoyments, with the completely altered conditions of existence and increasing demands upon the strength and resistance of the individual in comparison to all that existed formerly, as well as with the tacit adopting of eating and living habits and vices of weak populations, there has been created and nurtured a fatal disease destroying the strength of nations: the irritation and debility of the nervous system called *neurosis*.

This disease, destroying the marrow of whole nations and extending ever more, neurosis quite naturally will bring about even in today's powerful nations the same tragic consequences if intelligent leaders, squarely facing their responsibility, do not alter the course of events.

Already we are confronted with a change in man that has been developing progressively for a long time, chiefly in the course of our century. Instead of the bulky strong type of man distinguished by solid bones, muscles and sinews, and sound digestive organs, we see a neurotic type who, in contrast, shows a weak physical constitution, weak bones, thin muscles and sinews, as well as small bowels and inadequate digestive organs; but in exchange he is marked by a nervous system better developed but easily irritated and weak. This neurotic man is especially evident in large towns: Mind the pale faces, flat-chested individuals, wearing spectacles, and those with artificial or bad teeth! That pithy

solid type, on the other hand, is seen but seldom, and then mainly among the rural population, being likely to disappear even there along with the progress of civilization and culture. On the whole, a human generation of weak nerves, in the course of degeneration, forms the population of our time.

The following excerpts from several of the monthly issues in 1965 of *Gesundes Leben* (Healthy Life), published in Hilchenbach, Germany, containing quotes from several other publications, substantiate Hensel's teaching that the decline of the human race is mainly due to the overfeeding with nitrogenous albumin, which lacks the blood- and nerve-building vital minerals of the primeval rocks:

The employer's association of Bavaria Germany, arranged a 'health forum' where Professor Valentin made the following alarming report according to the *Industriekurier* of October 29, 1964:

"In 1963, 11 percent more men and 23 percent more women had to retire permanently from working due to ill health, compared to the previous year. Only 30 percent of the eliminated working people reached the age limit of 65 years, namely, 30 percent of the working men and 40 percent of the office men."

"In 1961, the average age of the eliminated working men was 55.2 and of women, 56.8, 57.8 for the office men and 56.5 for the office women according to *Ärztliche Praxis* of October 31, 1964. Similar alarming reports about the health conditions of the younger generation exist in the German economy:

"The recruiting stations of the German Army report that 35% of the young men already show circulation damages, 35% carriage damages and 28% other health damages, so that only 22 percent were fit Class I,' (from *Süddeutsche Zeitung* of November 28, 1964, reader's letter). The *Frankfurter Allgemeine Zeitung* of December 7, 1964, reported on the 'increasing deterioration of the general health of the young people,' based on figures from that year's muster of Army District I. Whereas seven years ago 77.9% of the mustered youth were found fit for military service, now the fitness for service was 68.5%, which means a deterioration of 15% within a very short time. The FAZ as well as the *Süddeutsche Zeitung* fortunately explained the reason for this health catastrophe, saying:

"Here are shown the effects of civilization damages beginning with the excessive use of stimulants up to the addiction of poisonous drugs; the German Republic spends each year 15 billion marks for alcohol, 8 billion marks for nicotine and 23 billion marks for medicine — but in spite of these alarming facts we remain inactive."

Responsible government officials should pay more attention to the condition of public health as it relates to our economy. Unfortunately, such a subject is considered 'taboo' in Germany so that it is necessary to read foreign papers to get reliable information.

The turnover in health insurance and life insurance in the German Republic at present amounts to 13 billion marks each year. To this must be added 36 billion marks loss to the production process due to premature infirmity of working men and women, and a further 15 billion marks loss because of the sick people unable to work. Dr. Schäfer in *Die Medizin heute,* 1963, concludes that the price of being sick in Germany reaches about 60 billion marks each year. *(Neue Zürcher Zeitung,* June 25, 1964.)

Limited Executive Power. In the same paper of November 28, 1964, the picture of a so-called 'numerous' type of industrialist is drawn, who thinks of the success of his enterprise exclusively in a material as well as authoritative respect and who does not worry at all about the health-political aspect and its consequences of his activities. Similar facts were reported in the American magazine *Fortune* about the leading industrialists of tomorrow, namely, several thousand younger executives.

Hans Domizlaff, former advertising chief of the firm Reemtsma, wrote in 1950: "The general mentality of the industrial executive often is amazingly insufficiently cultivated or is stunted. Beyond the range of his closest activity he is a typical mass being, which is difficult to influence ethically or intellectually," (from *Brevier für Könige*).

A new mental concept for the removal of our present health misery must be initiated by concentrating all our efforts on a health maintenance to supply the people with natural grown food and a natural way of living:

"The politics of health must be placed on the same level as the politics of economy . . . 90 percent of lung diseases, e. g., could be avoided if personal hygiene, the danger of cigarette smoking and the avoidance of poisonous exhaust gases were taught daily by all interested parties." (*Ärztliche Praxis,* November 7, 1964)

"A large number of our premature invalids is made up of addict smoker ruins in the truest sense of the word. In spite of injurious trade work, these men use every free minute to smoke between 10 to 20 cigarettes during their working day. Often they believe they must quiet their nerves and therefore they smoke. They are unconscious of the fact that they take an insidious nerve poison." (Dr. Spengler, Württemberg, Germany.)

Doctors Not in Agreement. Some physicians already recognize what should be done about it. But unfortunately the theory is not put into practice because their daily medical work faces immense difficulties. Any improvement in the general state of health would undoubtedly diminish the amount expended on health insurance, inevitably followed by a perceptible reduction in the medical income. A few years ago this fact was called to the attention of the readers of the *Frankfurter Allgemeine Zeitung* by a practicing doctor:

"The present system of health insurance undermines and destroys the sense of personal responsibility . . . The grotesque thing about it is that we physicians do not dare to wish that the health insurance be placed back to a reasonable position and that restraints be applied, because the situation for a certain part of the immoderately overcrowded medical profession would be ruined, since their existence is based on an *inflated* condition of health insurance." (Dr. Niehaus, May 4, 1955.)

In the meantime, health insurance continues to be 'inflated'. This kind of 'social care' ought to be called 'financing of the irresponsible by exploiting those conscious of responsibility' in respect to public health. The internationally known nutritionist Dr. Werner Kollath said in his latest book on the same subject the following characteristic words:

"Man possesses the inestimable ability when he gets sick to pay for the treatment of his ailments. In this way he becomes a source of income of the highest proportion, increasing continually, because the diseases of one group further the existence of another group, and become indispensable for its existence."

"How then is it possible that in spite of such significant admission by professional authorities we still kep the dangerous illusion that the role played by medicine is to maintain public health, i. e., to reduce the number of sick people, when this problem is still to be solved? Please remember that the German Society of Dentists quit the membership of the International Union of Research of Vital Substances, because the latter supported the fight of the dentist Dr. Schnitzer of Mönschwiler who stated in public that malnutrition is the main cause of tooth decay (caries)."

In a situation a) where the State receives gigantic revenue from taxes coming from health destruction, b) where the economy is receiver of giant income money from health-damaging consumer goods, c) where the medical and pharmaceutical industry receives dynamically-increasing income - from the filled pots of health insurance - in such a time and situation it must be a joke, when the Labor Party representative Dr. Ellinor Hubert said before the Federal Assembly of Germany:

"Let us not just talk about the maintenance of our economic productivity, let us act even more constructively about the vitality of our men, our citizens, to protect their health from danger. This is the duty of our government and society."

Dangerous Errors. How can the State and a society protect its citizens from dangers to health when the same State and society secures its existence in good part by the fact that the citizens are *not* kept enlighted about the dangers to health, thus being unprotected! Dr. Hubert frigh-

tened her hearers with her report on the increase of circulatory ailments : In 1955, of a thousand members of the local sick fund, 32 (47.2% women); yet already in 1961, 53 (88.2% women) due to this ailment became incapable of working. Deaths due to heart diseases per 100,000 inhabitants: 1951, 53.1; in 1962, 74.8. Dr. Hubert called 'most' of these diseases caused by 'daily wear and tear', yet certainly she well knew the main causes of these diseases are faulty eating habits, overeating of animal protein, white flour products, white sugar, canned food, treated fats, deficiency of natural fats, lack of raw plant food and of whole grain food, etc.; further, addiction to nicotine and poisonous tablets and, last but not least, physical laziness and inactivity.

We are told about the Marxist socialists, these so-called fighters for the welfare of the working classes, yet we hear nothing about preventing the working man from remaining ignorant about the social damages caused by alcohol, and nicotine, from which he and his family suffer. The preachers of Marxism themselves are excessive users of alcohol and nicotine and silence the dangerous role that these poisons play among the working men. (From *Gibt es noch ein Proletariat?)*

The protection of health should be assumed mainly by each individual, yet today he meets the opposition of powerful political and economic interests of a force difficult to overcome. 'Thoughts, ideas and mental goals, which face a grouping of such forces, today have no chance to become realized', according to Dr. Fechner of Tübingen. He goes on to say that even the State is 'in the claws of compact industrial interests'. Again, Fechner speaks of an 'economic servitude or bondage of the official position' and repeats a word by his colleague in Tübingen, Prof. Eschenburg, of the 'perversion of will formation by the public office."

Also, the evangelical theologian, Prof. Gollwitzer said: "Today the churches stand in the midst of a large mutual business: government, factions, bureaucracy, capital, army and church - all of these hands wash themselves mutually and play the profits into their own pocket."

The *Frankfurter Allgemeine Zeitung* of December 15, 1964, reported that Germany of all countries has the greatest number of physicians and presumably also the highest cost of sickness per head of population. So the proposition was made to re-study their health system. The writer believes that the health system should be definitely *separated* from the sickness system, since the latter will not tolerate any shrinkage of its continually-expanding sickness system. Therefore, the untrue slogan is propagated: "Health is an expensive thing." Common sense tells us that sickness is what is costly, but in the medical-political language of Germany, common sense has nothing to do with it.

Dr. Jungmann, member of the Federal Assembly said before the Health Political Congress CDU in 1964: "Health is a favored subject of public interest, though there is no question that today it is not in danger in any particular way that should cause apprehension. On the contrary, the health of the whole population during the past fifty years has been constantly improving." *Ärztliche Praxis,* February 8, 1964.)

Evidently Dr. Jungmann confused the health of the people with the financial health of his profession since only the health of the latter is improving constantly as the official health insurance in 1950 spent 2.3 billion marks and in 1964 about 15 billion marks (estimated) for medical care. Permit me to define the new human picture of cybernetics: We approach the end of the masses, which were provided with the kind of entertainment and joys to suit the common man, since they were led by conventional thinking and emotional prejudice, instead of being guided by facts and sane reasoning. In future the mass of *quality men* shall be the dominating class of the great society, the new type of democracy with its totally new sequence of values.

"Only the mental magnitude of the doctor makes a doctor", once wrote Paracelsus. Physicians possessing this mental magnitude merit our high esteem, even reverence! Still, we must not overlook that there also exist low levels in the

medical profession, due to lack of personal or professional qualifications, or disfiguration of the medical art by today's so-called system of health insurance. It is definitely not so that modern medicine is the only great blessing for mankind (Dr. H. Schulten).

From *The Politics of Health in Germany* by Dr. John G. Schnitzer: "My memorandum on the actual health situation is based upon the figures of the enormous extent of premature invalidity and skeleton damages of the school children, which Dr. Schmidt, a member of the Health Ministry, explained during a public discussion. The terrifying aspect is that our health politicians are not guided in the first place by the reality of health, but primarily by the *political* and *economic* reality or, said in plain words, they are guided by the political, finance-political and economic power situations. Therefore, Mrs. Schwarzhaupt, minister of the Federal Health Department said about the problem of poison in our daily food due to the poisonous insecticides: "Our adjustment to the European Common Market is of more importance."

The director of the Medicinal Hospital II of the University of Hamburg, Germany, Dr. Arthur Jores, thinks quite differently: "According to the statistical data of a large factory health insurance program comprising 14,000 working people, in 1955 there was an average of 550 daily patients, whereas today's average is 850 patients daily. We see, therefore, that man, despite the ever-praised progress of hygienic, medical, social and technical nature, is not healthier but has become sicker than before."

Dr. M. O. Bruker, Chief of Staff of Eben-Erzer Hospital in Lemgo-Lippe, Germany, was menaced with a lawsuit by the sugar interests if he continued to publish his writings about the danger to public health from the use of white sugar and boiled sweets, in particular about the danger to the teeth of school children. But Dr. Bruker simply replied that his publications are based on scientific research and results of many well-known scientists and that he as a medical man by law and profession fills a public duty when he fights a propaganda that is dangerous to public health.

Editor Rudolf Augstein of the German magazine *Spiegel,* No. 11/64, said that 'to call for a new law for the dental care of young people, which provides only a regular inspection and treatment *without* sufficient education about the use of white sugar and sweets being the main cause of tooth decay (caries), would indeed be a new deception. The earnestness of the medical-political will of the German union of dentists can become credible only after it has informed the public in plain and clear language of the practical experience demonstrated and taught by the dentist Dr. John G. Schnitzer and which is convincingly confirmed by scientific research.' Two billion German marks per year spent on dental care is no trifle.

The enormous tooth decay business and inconceivable consequences which are the result of the criminal sin of malnutrition due to the lack of enlightenment is the tenor of a communication published in the United States: "According to the investigations of the Health Service of the U. S. A., over twenty million Americans are absolutely without teeth and another ten million adults have no teeth left either in the upper or the lower jaw. A total of two billion, 250 million teeth are missing, are decayed or have already been filled." (*Frankfurter Allgemeine Zeitung,* March 10, 1965.)

It is certainly not difficult to figure the exact amount that has been spent on the average in the course of years for every one of these teeth, for repeated treatment, filling, extracting, and then for its replacement. Multiplied by 2.25 billion, this would amount to the sum which up to now has been cashed by the American dentists, due to the wrong attitude about good health and natural living habits of the American people. Experts estimate this sum to amount to at least 200 billion German marks, cashed in a land which holds the world record as far as the use of tooth paste and tooth brushes - but also the consumption of white sugar - is concerned.

A well-known economics journalist recently reported about the liberty of the press: "Liberty of the press is not what is

written in our basic law, but it is that which the publisher finds advantageous to his advertising business."

Wrong control of public health as a business factor. How bad living habits can help business and the Government:

a) by the increased turnover of sugar and sugar products;
b) by the increased business from dental care;
c) by the increase of decayed teeth in turnover of health insurance is furthered;
d) by the expansion of the three above factors the taxes on income, turnover, trade, wages, etc. are increased;
e) by the increased turnover of doubtful means prevention (tooth paste, brushes) plus misleading propaganda by hired reporters, advertisements by industrial interests containing manipulated medical writings by dependent scientists, etc., in the press.

The laws of nature, it clearly follows, cannot be made inoperative by being simply ignored or silenced; in spite of technical and cultural progress, we must clearly observe Nature's laws, if we wish to remain healthy, physically and mentally fit and daring in action.

Rheumatism. The essence of "life" is clearly described by the word itself. It rests upon *liveliness,* upon *movement,* on continuous movement, on the continuous flowing of our body juices, the blood sap, the lymph sap and the nerve oil. They must remain in movement without any interruption. Stagnation of these means their slowly dying through chemical decay. It may happen that these life fluids do not stagnate or stand still in their entirety, but only in single regions of the organism. Then, of course, only the individual parts succumb to the standstill, while the remaining parts of the body continue working until the stagnation has finally extended over the whole area. In principle, it is of no importance how much time may be required for that extension. Stagnation in any of the various regions absolutely cannot remain without influencing the general circulation of the saps for the simple reason that the blood as well as the lymph vessel system, and no less the numerous nerve branches, form within themselves an interlacing unit, the various sections of which influence each other.

We shall now have to learn by what factors such disturbances in the movements of the sap may be caused and in what way they can be removed if not too long a time has passed since their beginning. But this fact must always be borne in mind, that every nerve area in which the blood current has continuously been hampered becomes stiff and lifeless and cannot be restored to life again.

As to the *causes* which lead to a hindrance in the movement of the blood sap, mainly the following must be mentioned:

1) Insufficient elimination of the combustion products of our physical substance (carbon dioxide gas and nitrogen).

2) Imperfect supply of food for the renewal and repair made necessary by the wear and tear on the breathing organs.

3) Atmospheric influences such as temperatures which are either too low or too high to keep our nerve albumin and blood albumin in a perfectly fluid state, thus impairing the mobility of the juices.

If no measures were taken so that the remnants of the fuel with which boilers are heated could escape through the chimney, and if ashes below the fire grate accumulated in such a way that no air could penetrate, the flames would also, forcibly, become ever weaker and the production of the steam driving the wheels would diminish. It is just like this with our body machine.

Out of the heart there comes the trunk artery (aorta) the thickness of a thumb which, according to the pressure power of the heart muscles, goes a certain distance upward, but then, since every fluid submits to the law of gravitation, it turns downward and leads the heart blood in that direction. Out of the curve formed by the aorta there spring two arteries transporting the necessary blood respectively to the brain (through the neck arteries) and to the arms (through the collar bone arteries). But such raising of the blood is due less to the pressure power of the heart than to the attracting power which is exercized by the electrical brain

mass on the bloodstream and the arm nerves coming from the spinal cord.

Beyond this, as already pointed out, the blood flows downward towards the abdomen and the thighs. In the abdomen the aorta forms branch connections to the stomach, the spleen, the liver, the kidneys, and dozens of ramifications towards the intestinal duct of 13 to 26 feet in length, since *no* nerve center could work without being supplied with arterial blood containing oxygen. The strongest two branches of the abdominal aorta lead towards the thighs.

But all the blood that is driven off from the left ventricle of the heart must return to the right one. What would occur, for instance, if the blood flowing to the tips of our fingers remained there? Would we not get, then, instead of thin fingers, elephant feet on every hand?

All the blood flowing somewhere must return. This happens in the following way: The last fine blood tubes divide up into a fine net of really hair-fine tubes called capillaries, which are provided with pores. The capillaries suck up the carbon dioxide drawn from the consumed nerve oil and tissue substance, and the veins which spring from the again reuniting capillaries lead the blood charged with carbon dioxide gas to the right ventricle and from there to the lungs. In the lungs, the gas-like combustion product carbon dioxide is blown out, so that fresh oxygen can be taken up and the newly-provided blood can be led back through the lung veins to the left ventricle.

Just as the carbon dioxide blood flows back from the tips of our fingers, exactly in the same way this happens out of the mucous membrane of the intestines, of which each individual membrane encloses a fine branch of the sympathetic nerve, around which a blood vessel capillary net extends. Since the blood is subject to the law of gravity, it becomes quite clear that the blood easily remains in the numberless blood vessels of the abdomen if it is not raised by the strength of the lungs which serves as a suction pump. In the case of woodcutters who, with every stroke of their axe, loudly expel their breath and with people who move their legs by vigorous walking, all this is of little importance; but it is quite different with the stay-at-home sitting in front of his desk; his exhalation is very imperfect so there remains much carbon dioxide dissolved in the blood of the abdomen. Now, since all blood returning from the intestines has to pass through the liver, this elastic gland is excessively extended through the venous blood; and the blood, then, in the capillary ramifications of the portal artery, which extends to the liver, easily comes to a standstill. Since a certain excess of carbon dioxide in the blood coagulates the fluid hemoglobin, and this clotting process takes place in the thin capillary tubes where the movement of the blood itself is already slower, the clotted blood albumin prevents the access of fresh arterial blood, and in this way gives rise to extended regions of blood stagnations, which, subsequently, cause numberless abdominal diseases.

The nerves of the intestines do not, to a large extent, come from the brain, but from the *non-sensitive* sympathetic system, so that similar conditions can last for a given time without any special pain. It is different when stagnation of the blood occurs in regions where the nerve endings come directly from the brain or from its continuation, the spinal cord. In such cases, when there is a standstill of the magnetic bloodstream, it happens that the electricity becomes free and streams out of the respective nerve branches and is manifested in the form of winces, piercing pain and jerking.

Such stagnation of the blood, the cause of *rheumatism,* is brought on by various circumstances:

1) Persistant colds of the nerve ends which run along near the outer skin (nerves of arms and thighs, including spinal cord).

2) Habitual overeating. The blood, first, stagnates in the mesentery arteries, whence the stagnation transplants itself to the entire blood vessel system.

3) Preference given to meat together with excessive drinking of alcohol. Meat is lacking those calcium and sulfur parts necessary for the formation of new oxygen-breathing red blood corpuscles. At the same time along with the alcoholic

drinks, blood salts (Glauber's salt, common salt, etc.), upon whose electrifying effect the perfect movement of the blood rests, are eliminated from the body. And the alcohol, in the process of breathing, produces an excess of carbon dioxide which, as is known, leads to the coagulation of the blood albumin.

4) Excessive tobacco smoking. The cyanogen-holding nicotine of tobacco, absorbed by breathing, produces, along with the living blood iron, lifeless hydrocyanic acid, which cannot retain the breathed-in oxygen.

To get rid of rheumatism, then, keeping in mind all said above, the following becomes evident:

a) First of all, one must renounce wine, beer and tobacco, and likewise, as far as possible, meat (animal albumin). If meat decays and decomposes in the air, it also takes place in the digestive tract, and then out of this there result ammoniacal decomposition products acting in a paralyzing manner upon the abdominal nerves and, hence, also on the blood circulation. A suitable nutrition, then, would consist of potatoes, with butter, whole meal bread, vegetables, nuts, fruit and some milk products, all biologically grown with compost and ground rock.

b) Daily warm baths can be recommended in order to animate the skin nerves and to widen the blood vessels so that, despite the eliminated coagulated fibrin which is narrowing the blood vessels, a certain free passage of the blood remains secured.

c) Digestive salts, a flat teaspoonful dissolved in a cup of warm water, to be taken about an hour after lunch and after dinner, this digestive salt consisting of a mixture of 50 parts Glauber's salt (sodium sulfate), 30 parts sodium bicarbonate and 20 parts sea salt. Through it there is imparted to the produced chyme a dissolving and hydrating capacity with reference to the coagulated fibrin, which again renders free all the subtle approaches for the flowing nerve-vitalizing oxygen blood.

d) If possible, carry through once in every full hour the *Hensel breathing exercises* with the aim of extracting the nerve-paralyzing carbon dioxide from the blood. One stands behind a chair, grasps its back with both hands, then makes a knee-bend exhaling at the same time. Then one stands up again, quite straight, allowing the naturally-following breathing-in to take place. One feels that instead of the usual lazy breathing a more lively function takes place, and that far more air is *expelled* than taken in, since simultaneously, a part of the carbon dioxide collected in the venous blood of the bowels has been breathed out.

e) To strengthen the blood for an efficient absorption of oxygen, one takes an easily-absorbed *iron* preparation which does not affect digestion, but on the contrary restores and invigorates it. A broad knife-tip of iron sugar or hematin iron is either put into the soup at midday, or put on the tongue and swallowed with a little water.

Rheumatism is caused by the checking of the circulation in the capillaries and it requires the same treatment as that for stones in the bladder (page 209), namely, warm baths to expand the blood vessels, physiological salt water to change the urates which are difficult to dissolve, into soluble double salts, sulfur, calcium and iron to increase the number of red blood corpuscles.

"Medical and social statistics find that 7½ percent of the white race suffer from chronic polyarthritis. This makes for the U. S. A. about 13 millions persons, for Germany nearly 4 million and for little Switzerland 400 000 persons. To this tremendous *loss of working hours* must be added the loss of all the other working hours caused by arteriosclerosis, cancer, heart disease, diseases of the liver and digestive tract, etc. No wonder that an increasing number of far-sighted statesmen in the Old and New World begin to understand the 'writing on the wall' and have decided to fight the progressive degeneration of the white race." From *Wendepunkt,* Zürich, August 1965.

Scarlet Fever and Measles. Whereas, in the case of catarrh, the fine serous (watery) membrane coating the inner organs dissolves, diseases of the skin are caused by a chemical decay of the phosphatic contents flowing into the lymph vessels of the skin. Most characteristic of this circumstance is the so-called milk scurf in

children of tender age. Is it really caused by milk? Yes, and no! In any event, there is no directly noxious substance in the milk given them, but something is lacking in it. What can this be? Often a single aspect, a feature by itself may sometimes remain obscure, but placed side by side with another it becomes easily recognizable. For instance, infants who have milk scurf have but little hair on their heads. Hair requires sulfur as well as silica for growing, up to 5% of the sulfur to be supplied by blood and lymph juice. Now if the nourishment does not contain enough sulfur, what will make the hair grow? Sulfur maintains blood and lymph albumin chemically united with minerals and protects them against decomposition. Although even sound milk contains but little sulfur, approximately only an eightieth part in proportion to the phosphates contained in the milk, this is quite normal, since milk is destined first of all for use by infants and calves. In their case, then, phosphatic nerve substance on one hand and phosphatic bone substance on the other must contribute the most towards the growth of the bones, skull and spinal column. But wholly without sulfur matters would surely not be satisfactory. When milk is poor in sulfur substances, milk scurf will be the result. In such cases, one should either drink better milk, or, as an alternative, add a small quantity of sodium sulfate to the other foodstuffs. From the same point of view one should consider all other kinds of skin eruptions, including scarlet fever. Do not scarlet fever patients usually lose most of their hair? If their nourishment had contained sufficient sulfur, hair would not have fallen out nor would scarlet fever have developed.

Skin Eruptions, Elephantiasis, Leprosy, Scrofula. Skin diseases and glandular swellings arise as a consequence of the deterioration of the lymphatic fluid when this does not contain enough calcium and sulfur through nutrition to hold the albumin together.

One of the most curious forms of skin diseases is *elephantiasis,* so called because the lower part of the legs and feet, the subcutaneous connective tissue which is interpenetrated by numerous lymphatic vessels, swells up so immoderately that it becomes like the clumsy shape of an elephant's foot. The cases involved are always gluttons who indulge in a heavy meat diet and an abundance of wine.

I had the opportunity once of studying elephantiasis in the case of a beggar. As I approached him a strong odor of alcohol met me, which showed that he was a heavy drinker. The lack of calcium and sulfur in the blood and lymphatic juice was recognizable as the cause of the disease for alcohol contains no sulfur, and habitual drinkers are not accustomed to consume much solid food. Nevertheless, the respiration continues and the products of the oxidation of the blood albumin, which contain sulfur, lead to the formation of sulfates, which are eliminated in the urine more and more every day. Then the phosphates of the flesh (phosphate of creatine), of the nerves and the bones, eventually gain complete control. No wonder that the material of the bones, full of phosphorus, expands like a sponge and that phosphoric material of the skin nerves turns into maggots and worms (lice disease). This process can be compared to the formation of fungus in houses *(Polyporus destructor),* which grows out of wood which has been deprived of the easily-soluble sulfates by long continued moisture. Without sulfur there can be no protein. In the wood fungus the coherence of the cellulose of the wood is lost. Instead there is found a new and peculiar formation of tissue based almost exclusively on phosphate of potash, and imitates in a striking manner the ramifications of the sympathetic nerve plexus which is based on ammonium phosphate.

In a similar manner, by metamorphosis, lichens and mosses appear on the bark of trees which predominantly contain phosphates. Lichens and mosses also show no sulfur in their ashes. And in the same way herpetic eruptions take place on the human skin when their lymphatics show a protein deficient in sulfur. Even the well-known disease which we call *syphilis,* most easily finds an abiding place in individuals of a weakly constitution, who have not sufficient calcium and sulfur in the blood and in the lymphatic juice to

offer resistance to the infectious disintegration. The latter is cured by the mineral water at Aachen, Germany, which contains sulfide of sodium, sulfate and carbonate of calcium.

Leprosy falls into the same category. It is impossible to cure it with external remedies, nor can it be studied in a single individual. We must rather view it through the *manner of nutrition* in the various countries attacked by it. In the islands of the Pacific the inhabitants live chiefly on sweet fruit — bananas, coconuts, dates, breadfruit, mangoes, papaws — to which are added fish. Bananas contain an extremely small amount of minerals, particularly little of the sulfates, potash and calcium. Because of their lack of earthy material they are subject to decay shortly after they ripen. Fish also contain but a small quantity of sulfates or of earthy materials and they putrefy within 24 hours.

Where potatoes are universally raised and eaten, leprosy, the plague, black death and smallpox have ceased to be epidemic. The Irish, because they eat herring and potatoes, are free from leprosy. Healthy potatoes with an abundance of earthy constituents have no scurfy skin and can be kept all winter, while potatoes manured with stable dung and nitrogen fertilizer are scurfy and rot easily. It is always the *earths which* impart *durability and coherence* to the flesh of fruits, as also to the *tissue of the muscles*.

The close similarity of the ashes of potatoes to the ashes of beef is shown by the following figures:

	Ashes of Beef	Ashes of Potatoes
Potash	41	58
Soda	2 1/2	3
Calcium	1 3/4	3
Magnesia	3 1/3	5
Hydrochloric acid	5	3
Sulfuric acid	3 1/3	6
Phosphoric acid	34 1/3	16
Silicic acid	2	2
Carbon dioxide	7	4

Taking all things into consideration, leprosy should be regarded as an intensive *scrofula,* originating in a defective mixture of the blood. Children become scrofulous if they receive watered milk without the addition of salt. Salt is a protection against chemical disintegration because it electrifies. Among the earthy constituents of the blood is iron of which the ashes of beef contain about one percent. But the consumption of meat in the tropics is injurious, as the bases of meat (xanthine, sarkin, etc.) are disposed to separate into *prusisc acid* (hydrocyanic acid) and *ammonia.* In a thin hot tropical atmosphere, if a sufficiency of oxygen is not inhaled, it is advisable to take 10 to 15 drops of Hensel's Tonic with sugar daily. In addition, physiological salt water with its content of sulfate of potash and soda has a regulating effect on the normal constitution of blood and lymph. A firm foundation for normal albumin is laid by using washed sulfur and calcium-magnesium phosphate, whereby eruptions disappear. The same treatment also proves successful against herpetic eruptions of every kind, as well as against scrofula.

Sleeplessness. The symptom accompanies qualitative poorness of blood and may be removed as soon as a normal constitution of the blood has been restored. Tonic iron-holding lemonade alone taken in the evening proves to be effective in inducing sleep in a physiological sense. In Berlin, I was once visited by a bookseller whom I had not seen during the eight years of my absence in foreign lands. I offered him as a refreshment a glass of tonic lemonade which he drank as if it were Hungarian wine. As he seemed to like it I prepared a second glass. The next day he returned and asked what it was that he drank with me yesterday. "Did you feel well after it?" I asked. "Yes," was the answer, "in three years that was the first refreshing night's sleep I have had."

It is with the nerves as it is with the whole man. If they receive what they ought to have, they are contented. I had long known the action of tonic lemonade in producing refreshing sleep, but I had not mentioned it in my writings and I was therefore surprised to hear that Hensel's Tonic is also used elsewhere as a rational remedy for strengthening the nerves and as a physiological means of inducing sleep. It also has happy effects on *morality.*

Nerve-calming and sleep-inducing teas can be also made of melissa balm, peppermint, anise seed, caraway seed and fennel seed; the tinctures made therefrom are proven home remedies.

Wearing woolen socks in bed to keep the feet warm is another prevention of sleeplessness.

Smallpox. An inadequate concentration of the lymph is the cause of the decomposition of lymph fluid. Just as thin beer ferments more easily than beer with a richer content of wort, so also is diluted lymph more easily decomposed than lymph of a higher specific gravity. A considerable content of earths and salts is essential for the lymph to attain a higher specific gravity and greater concentration. Salts act as protection against chemical decomposition; calcium, magnesia, manganese, iron oxide have a similar effect. When the lymph has a tendency to decompose, an insufficient proportion of mineral substances is doubtless the principal cause. A secondary cause must be sought in the temperature of the air inhaled, together with its deficiency in oxygen. Now, inasmuch as the lymph is extracted from the nutriments consumed, it follows that *inadequate nutrition* and *impure air* must without doubt be regarded as the causes of smallpox. Indeed, food rich in minerals and activity in cool, pure air are the *two quintessential factors* that build up and maintain our health.

The smallpox patients which I have seen myself were all pale and anemic, consequently, badly nourished. And when we remember that in chlorosis an undue proportion of white to red blood corpuscles occurs, so smallpox critically considered is nothing but modified chlorosis. In chlorosis, too, skin blisters and lymph pustules form attendant symptoms. The more we consider smallpox the more we find it as merely a variety of chlorosis, more especially as both affections may be prevented and cured by one and the same treatment, namely, sulfur, iron and blood salts and washing the whole body with ordinary vinegar-water or plain water. The same treatment applies to the *foot-and-mouth disease of cattle* which also is a decomposition of the lymph.

Children may be effectively protected against smallpox by giving them milk with a little *sea salt* added, which is also efficacious in chlorosis. To every half pint of boiled milk add as much sea salt as will lie on the point of a knife. Cow's milk contains about 7 grams of ash substances per quart, while normal blood contains between 9 and 10 grams, so it is advisable to make up for this difference by the addition of sea salt.

Milk is the richest in calcium of all forms of nutriment, containing in its 7 parts per 1000 of ashes more than half calcium. Calcium protects the albumin from chemical decomposition. Yet when the milk for infants is diluted with twice its volume of water, the advantages of the calcium and iron already pointed out disappear, these minerals being contained in milk in the same proportionate amounts as in normal human blood.

If the nursing mother is of weak constitution and does not possess enough calcium, iron, sulfur or "blood salts" for her own requirements, her milk is also necessarily of watery consistency and the want of appetite and the appearance of smallpox in her infant is only too easily explained. I know of no better comparison than that of a good strong meat broth and a miserably weak one. We consume the former with pleasure, we leave the latter untouched.

In the case of adults, tonic iron lemonade acts both healingly and preventively against smallpox, even when taken alone. I have known of cases where smallpox had broken out in a family in which the mother had gone through all the preliminary symptoms (shivering, indigestion, vomiting, pains in the stomach and the characteristic aches in the back and loins) and still was kept from the actual outbreak of the smallpox pustules by the use of tonic iron lemonade. It is true that a nourishing diet was used at the same time, as soon as the lemonade had restored the appetite. In the case of weakly children and young women half or one teaspoonful of *Hensel's Tonic* in half a pint of sugar water given daily will suffice to restore them to a healthy condition of nutrition and digestion.

In all of my writings I have tried to explain the chemical reason why *whole red*

blood not only is the *best medicine* and prevention of disease but at the same time is the one doctor living in our own organism that is always ready to help and never fails, being the *safest naturophatic physician*. Any attempt to replace the naturopathic healing by vaccination or X-rays will be in vain. At the time of Jenner, Koch and Pasteur, physiological chemistry still stood in its infant shoes, so that the inoculation by virulent vaccine is understandable. However, in the biochemical age of the 20th century, knowing as we now do that the chemical basis of our body gelatine rests upon groups containing cyanogen CN or hydrocyanic acid HCN, which can give rise to decomposition products of a highly poisonous nature, vaccination and X-ray treatment must be considered a chemical absurdity. (See section *The Bacteria Theory in the Chemical Light, page 148.)*

Sterility. I have observed in a number of cases that cutaneous eruptions and sterility go hand in hand. The connection of the two is found in the deficiency of sulfur in the blood. If the albumin of the blood does not contain enough sulfur no vitellin (ovum) containing phosphorus can be separated from it.

The fishes of the sea have astonishing fertility, as shown by the inexhaustible numbers of herring and the countless roe of fishes. The favoring factor lies in the salt content of the sea water which always contains sulfate of calcium and sulfate of magnesia.

In agreement with this view there are found in certain places "bubenquellen" (boy springs) whose water contains sulfates. Women are sent there to improve their blood constitution so that on their return home they may conceive and bear children.

As a contrast, the inhabitants of the Sandwich Islands (now Hawaii) were dying out from insufficient fertility, at the same time leprosy was common there. In the eighteenth century, the number of Sandwich Islanders was stated by Cook to be 400 000. This number gradually declined until in 1875 there were only 45 000. Tetanus also points to the sole rule of the nerve substance which contains phosphorus. Remember that all the phosphates (compounds of phosphoric acid with basic material) are mostly the genuine motive power of all growth. On the other hand, we can observe how sulfuric acid proves to have a restricting and regulating effect on the phosphoric acid of the ammonium phosphate of the nerve substance and again how the calcium and magnesia earths influence and restrict the ammonia of the ammonium phosphate.

In August 1891, the newspapers of Glasgow, Scotland, brought reports of an epidemic in St. Kilda, one of the smaller western islands. The islanders lost most of their children through tetanus within a week of their birth. The first-born child was said to be usually exempt from this, which may be explained by the fact that the mother's blood used up all the disposable sulfur-containing albumin for the formation of the first child. One of the families lost twelve, others from two to eight in this way. This mortality was ascribed to their manner of living, and indeed to the oily nature of their food which consisted chiefly of birds and fishes. It was reported that no remedy had as yet been discovered although the peculiar malady had been reported to the medical men of Glasgow. I myself, I would recommend sulfur as well as iron. Such a treatment in a case where after twenty years' marriage all hope had been abandoned, was followed by the birth of a daughter, causing great joy.

THE HEALING POWER OF WATER IN THE CHEMICAL LIGHT (Hydropathy)

The fact that out of all kinds of animal matter (sinews, skin, muscle tissue) potassium cyanide can be produced when heated with potash (potassium carbonate), as well as the fact that the chemical analysis of muscle flesh and connective tissue show the elements of cyanogen CN or of hydrocyanic acid (prussic acid CNH), led chemists to assume that cyanogen played an important part in the primeval creation

of animal bodies. But this supposition was expressed only in a restrained manner since cyanogen and hydrocyanic acid, as proved by experience, are poisonous and destroy animal life.

The mystery of these opposing factors is solved when we know that prussic acid by chemical union with water is transformed into a *non*-poisonous ammonia salt. Thus, hydrocyanic acid through intermediary shifting of 2 water HHO into the atomic group of hydrocyanic acid is transformed into formate of ammonia:

C (OHH, OHH) HN = COHHO | HHHN

and 2 cyanogen along with 4 water HHO become oxalate of ammonia:

C (OHH, OHH) N = COOH | NHHH
C (OHH, OHH) N = COOH | NHHH

According to whether carbonate, formate, hydrocyanide or oxalate of ammonia participate in the circular union of cyanogen and hydrocyanic acid, thus forming a compound, we can explain the chemical differences between the various flesh bases, sarkin, xanthine, creatine and urate of ammonia.

It is the grouping into a closed unit of the complete contents of the carbon of cyanogen which explains the non-poisonous character of the group, but in the case of chemical decomposition, the individual components (cyanogen, prussic acid, carbon dioxide and ammonia) are set free and can manifest their poisonous nature.

Under normal conditions the physical substance of men and animals remains protected against decomposition through water, as water forms about $^3/_4$ of the body weight. The bodily tissues containing cyanogen originate in the chemical splitting of water from fluid blood albumin. The more water is separated, the more solid becomes the substance left behind as, for instance, the sinewy fiber out of which, as already mentioned, potassium cyanide can be produced.

On the other hand, muscle tissue produced out of fluid blood albumin by chemical water splitting (separation), if protected against putrefaction by air, can be preserved for about 21 days in water and becomes fluid albumin again by chemical union with water. To a certain degree, such a chemical fusion process takes place before our eyes within a few hours when we put flesh or fish in water. Such liquifaction of coagulated blood fibers, fibrin, and of accumulated rheumatic substance (urate of ammonia) is obtained unconsciously by hydropaths.

In contrast to this, death due to senile decay is based upon a slow but steadily advancing dehydration, that is to say, petrification or ossification of the tissues. This natural end, caused by the slow dwindling of the electric force which holds the water chemically united, can be delayed more or less by the periodical use of water from warm electric springs situated above volcanic soil, such as are found at Carlsbad and Wiesbaden, which stimulates new chemical absorption of water by the tissues.

Just as death from senility means a long, permanent escape of the electric force, the cold sweat of the dying is a more rapid disappearance of electricity, along with a corresponding separation of water from the tissues and the blood albumin. The cold of the death sweat follows the physical law that in the separation of a chemical group as much heat disappears as was formerly necessary to bring about the union.

To this are related the chills and fever chills which can be traced back to a chemical separation along with the creation of fibrin. Dysentery in the case of cholera should also be classified in the category of water separation from the tissues, resulting from the disappearance of the chemical tension powers conditioning life, which we call electricity. Chills and dysentery are chemically considered on the same level as the cold death sweat.

This chemical separation of water does not affect water as such, but must be traced back to the existence of carbon dioxide and hydrocarbon ($C\begin{matrix}O|H\\O|H\end{matrix}C$) side by side, which means of their electrochemical opposition guarantee both attraction and cohesion. The loss of 2 hydrogen H attached to carbon C, further, 1 oxygen O taken from 1 carbon dioxide in the form of water HHO while splitting the original group (whereby heat is lost), in opposition to the normal combustion of HH due to breathing (whereby heat is produced),

must be considered as cold oxidation or cold combustion. Along with this, there is always noticed the partial disappearance of electricity, felt as a loss of heat. Such disappearance of electricity can be caused by atmospheric influences as well as by emotions, or result from a decrease in the electric tension power (loss of salts and mineral substances) in the blood.

Sometimes atmospheric influences furnish only the decisive stimulus causing an ailment to become visible when the system has already been prepared by a weak and powerless blood mixture and the deficient resistance of the nerve functions for the onset of disease. Under this heading you will find the catarrhal affections and colds, also paralysis, lumbago, rheumatism and gout.

The certainty that blood fiber substance, fibrin, is identical to albumin which has absorbed oxygen, thus losing a part of water, comes from the observation already mentioned that blood fibrin, even in ordinary cold water shut off from air, after 21 days is transformed back into blood albumin through new chemical absorption of water. Surely this is the best evidence of the fact that fibrin must have originated from blood albumin which had lost a certain proportion of water.

This natural physical-chemical process in the origin of fibers can be demonstrated very clearly by a practical experiment. If you thoroughly beat blood freshly taken from the arteries by means of a whisk such as one uses for beating eggwhite into froth, dehydrated albumin (blood albumin) in the form of long, brilliant fibers will stick to the rods.

(The miracle of the creation of animal organism showing fibers and flesh attached to bone earth is chemically conceivable if one pre-supposes an original solution of albumin, that is, cyanogen compounds and salts in water. Since there is no substantial difference whether a solution of salty blood albumin is beaten by a whisk or whipped up and down in an electrical thunderstorm by lightning and thunder, the creative divine power could, with all the storm's heights and depths, saturate the primeval sea with phosphorous and sulfur cyanogen gas and populate it with fishes, snails, mollusks and corals.)

These fibers, then, make exactly the same impression on the naked eye as looking through a microscope and observing the exceedingly thin nerve threads in the tail of a dwarf mouse, the smallest of mammals. Surely there can be no doubt that the origin of the tender outer coating of the nerve fiber (neurilemma) can also be traced back to the chemical separation of water after access of oxidizing air to the nerve oil (lecithin) -containing ammonium phosphate.

This coating, naturally, is considerably more tender and firm than the sinewy fiber which originates in the sticking blood gelatine but the chemical process in this creation is exactly the same as in the whipping of oxidizing air into the blood freshly drawn from arteries. According to this, one is entitled to draw the conclusion that a surplus of oxidation along with a corresponding separation of water must have, as a result, a drying, parching effect on the nerve substance. This fact offers the explanation of certain paralytic conditions and of certain affections concerning the brain mass which are termed mental diseases. If oxygen blood ceaselessly flows to the same spot in the brain mass, solid fibers result therefrom, which then become evident as "fixed ideas." If these areas are set at rest by directing the bloodstream through change of environment and the circle of ideas to other parts of the brain, the fibers can grow fatty again and then disappear as a consequence of deep breathing — the only possible way for healing mental disease.

From this natural law in which the access of air (oxygen) is followed by water separation whereby more solid tissue remains, we can understand the creation of the physical tissues of the young chicken through the effect of the air, which penetrates the pores of the eggshell, upon the specific albumin substance. With the cooperation of brooding warmth there are created in this way not only muscles and bowels, but also hair and feathers along with the blood serum, which benefit by the parts of water thus set free.

On the other hand, we also understand how, in the sphere of diseases, through

loss of warmth (in the case of colds) a diminution of electric tension takes place. Consequently, there occurs a separation of water without a previous access of warming oxygen, and in such a way are born the cold and catarrh of the nose mucous membrane and numerous other catarrhs (bronchial catarrh, catarrh of the stomach, the bowels, the uterus, etc.). Since such catarrhal conditions not only affect the upper serous membrane but also the lower layers, including the blood capillaries and lymph vessels, the origin of fiber substance connected with the loss of water is the natural cause of the stagnation of the motion of the blood in the obstructed vessels. This is what produces the numerous inflammations, which, according to the different parts of the body have different names, for instance, pleurisy, pneumonia, laryngitis, abdominal inflammation, inflammation of the brain, and so on, for the same process in various parts of the body — coagulation of fibrin in the blood or lymph juice.

The usual progress of these disease is the following: Due to the net-like communication of the blood vessels (anastomosis), the bloodstream can detour around the affected spot and leave it untouched. Provided we do not make the condition worse by using wrong medicines, the natural result is that the coagulated fiber substance is already transformed under the influence of bodily heat back into fluid albumin. This is due to the chemical union with water, after seven days instead of after three weeks when placed in cold water. In this fluid condition the albumin is either organically reinstated or, if this is not possible as in the case of pneumonia, it is expectorated by coughing while the patient is convalescing, regardless of what kind of treatment he has received.

Therefore, the popular belief that inflammations usually reach a critical stage nine days after their beginning is not without foundation, inasmuch as the state of the patient then becomes either better or worse. I say "or worse" because it can happen that the diseased spot suppurates and the putrid pus little by little poisons the bloodstream. Such an unfortunate condition has been observed particularly in those cases where the vitality of the patient has been reduced through morphine or other poisonous substances or by applying ice compresses. On the other hand, you can assist the healing forces of nature through remedies which increase electricity or the vitality. One of these remedies is vinegar which impedes the decay of the fibrin since it is neutralizing and thus it renders harmless and innocuous the poisonous ammonia which is present in any putrefaction.

Give to every patient who shows fever as much vinegar water ligthly sweetened by sugar as he asks for. Even in the case of the rapidly-destroying cholera, vinegar water taken either as a drink, or applied on the body in the form of wrappings has a life-saving effect. This is due to the fact that cholera consists of the dehydration of blood gelatine and coagulation of lymph juice as a result of electrical influences, partly derived from the atmosphere, partly from emotion, partly from poor nutrition or even polluted drinking water.

Just like cholera, all other diseases due to climatic conditions such as malaria, dysentery and scurvy, are conditioned through the escape of electricity from our organism when living in air which is damp and deficient in electricity, causing the blood to thicken and become fibrous. Likewise, the loss of warmth due to cold winds, along with the escape of electricity, is conducive to that fiber excretion in the lymph vessels of the throat known as the much-feared diphtheria.

Furthermore, as an example of how quite different ailments apparently have the same cause, there arise also the manifold forms of *tumors* through fibrin coagulation within the range of the lymph vessels. The fluid content in this case separates into water and fibrin. While the water is absorbed (sucked up) and led back through the veins, the fibrin concentrates more and more and gives to the ever newly-arriving material the impulse to decompose similarly.

In this respect, I think of certain tumors which can attain the size of a child's head These, partially, rest on the shaping peculiarity of excessive phosphate, similar to the formation of mushrooms, lichens

and fungi out of tree bark containing phosphates or out of other plants rich in phosphates. Fatty swellings and tumors belong to this category since fibrin can, through chemical separation of carbon dioxide and in leaving behind and forming new groupings of hydrocarbons, be transformed into fat. Hams, for instance, clearly show this phenomenon. The more the muscle tissue disappears in ham, the more the fat layer develops, which, precisely, proceeds from the muscle flesh through chemical changes.

Incidentally, the removal by operation of tumors and polyps does not always guarantee against their return, as long as the nutrition remains oversupplied in phosphates, as in the case of a diet including a lot of meat. In order to prevent relapses one should take doses of sulfur in order to normalize the blood and lymph juices. Mineral waters rich in sulfate salts also prove helpful.

From the example of the way cattle become fat when fat accumulates in the muscle fibrin, because they are compelled to stay in narrow barns with no activity, the accumulation of fat in the liver, the kidneys, the heart and many other organs becomes clear. These affections are the outcome of a continuous, sedentary way of living and foodstuffs rich in phosphates. The cure consists of abundant breathing through physical exercise (walking, swimming, gardening, etc.). Through the chemical binding of oxygen brought about by deep breathing, new electricity is created which puts a stop to the further disappearance of electricity and to the chemical separation of water. This in turn opens the way to efficient metabolism and normal renewal processes, all the more when, with the collaboration of sulfate salts in the form of the mentioned mineral waters, the phosphates are being suitably counterbalanced. In this respect — and it cannot be repeated too often — normally constituted blood contains nearly *double* the quantity of *sulfate salts* as phosphate salts, whereas meat, wine and beer have up to 70 times more potash phosphates, than sulfate of potash and soda.

After these remarks, we shall revert once more to some considerations on fever, page 207.

It is well-known that shivering precedes, without any exception, all inflammations. The question here is simply a condition which coincides with the loss of electricity and the separation of water and with the fibrin accumulation in an undue quantity and in an improper spot. In these conditions we cannot have the slightest doubt regarding the way in which we need to support the natural healing of the inflammations accompanied by emanations of fever heat. There are mainly three items to be considered:

First: Eating and digestion must stop at once. This "driving power", ceaselessly active, should be eliminated for some time so that it may not trouble the other organs requiring repose. One can never make a mistake, by giving such a patient castor oil or administering an enema. Moreover it is better if he *fasts rigorously* until the moment when he is really hungry.

Second: Maximum rest and patience are recommended in order to keep the nerve power well conserved.

Besides, it is a well-known fact that in all circumstances in which fever prevails our nerve oil particularly inclines towards chemical combustion (oxidation). This must be counteracted. One must supply the exceedingly-inflamed nerve tips with chemical ashes, i. e., carbon dioxide and water, with the aim of reducing the combustion of nerve oil to a very small proportion, since our vitality depends upon retaining it. Therefore it is logical that the waters rich in carbonates are so effective. What has proved to be even more efficacious is vinegar water with some sugar because the vinegar is a chemical combustion or ash product, while the sugar is a chemical fuel, so that their combustion (oxidation) in our bloodstream maintains the process of life without consuming our own stock of nerve oil.

For this reason I repeat: Whatever disease may develop in a *feverish patient,* give him without any hesitation *sweetened vinegar water* in order to quench his thirst, and then leave him perfectly quiet. The eliminated fibrin necessarily requires sufficient time in order to liquify itself again through the absorption of water

and to change back into albumin.

Third: In cases of inflammation of the ordinary kind, the healing process can be furthered if the digestive tract is freed by means of an enema and by giving the patient cooling vinegar water with sugar to drink. When, however, the lymph system is affected to a large extent, as occurs in the case of scarlet fever, smallpox, or abdominal typhus, all of which become evident by a larger radiation of heat on large areas of the skin, the thin walls of the intestines are no longer sufficient to realize fast enough the scope of the liquifaction of coagulated fibrin through absorption of water. In such cases, stronger and more extensive aid must be given, so that stagnation of the lymph juice will not take place in excessive proportions, bringing on its putrefaction and decay, along with the danger of a general blood poisoning. For this purpose the skin should be *bathed continuously,* and as often as the fever renews, with a sponge dipped in vinegar, while preventing the accumulation of heat by covering the patient with only a light blanket. Very brief *cool baths* daily also prove helpful in cases of typhoid fever.

This treatment is effective in all cases of inflammation accompanied by fever heat. However, one must be careful to distinguish the feverish condition accompanying *chills,* in which case the already-reduced nerve oil consumption should *not be lowered* still further by drinking cold liquids. On the contrary, the vitality must be raised, and to accomplish this there is no better remedy than *heat. Hot drinks* (sudorific teas) in sufficient quantity, *hot bath,* a warm bed and a hot water bottle — these play a big part in restoring health.

In treating a cold, cold-water compresses (the so-called Priesnitz compresses), which actually act in a warming manner, are helpful. A temporary cooling of the skin through contraction takes place which prevents the blood in the fine capillaries from flowing too rapidly, so that the blood is retained at the surface of the skin longer than usual. Through this surface accumulation of blood the body warmth is increased. The significance of these compresses lies in the fact that their humidity is very limited because only one application is made. The existing humidity becomes warmer and is absorbed by the lymph vessels so that their contents remain movable and fluid, succeeding in nourishing the nerve fibers properly again. These compresses are an invaluable aid in healing colds, cough, and catarrh, and are suitable for the throat as well as for the chest and the abdomen.

But the absorption of water is advantageous not only in cases of acute disease. Creeping or latent diseases also, to which chiefly office employees and persons who are not active physically are subject, cannot be cured more effectively than by often repeated moistening of the skin, especially by bathing. Mineral water baths and drinking mineral water contribute with great success to the absorption of water so essential in re-establishing the proper blood composition. But still more important is physical activity, particularly regular walking which makes deep breathing necessary. This consumes the nerve oil, compelling a suitable renewal through nutritional means to replace what has been consumed.

Aside from the chemical absorption of water by the cyanogen compounds of the cells, sinews and connective tissue, there is a physical effect resulting from difference in temperature brought about by taking cold showers which produces electric force, thereby providing additional effective assistance.

Certainly we should have a high regard for water, for it is a positive remedy.

Many roads lead to Rome, but by the search for bacteria and virus the healing art has not advanced one hair's breadth. This can be better done by massage and hydrotherapy, for by massaging the stagnation of the blood is removed and hydrotherapy acts, first, by electrifying through difference in temperature, and second, through chemical modification whereby the dehydrated organic substances which have become fixed like fibrin again become flexible through *re-absorption of water.* This can be compared to the way in which hard toenails become yielding and flexible after a warm bath. It is the same with cartilaginous and sinewy substances. But this in no way ex-

hausts the essence of hydrotherapy. We must also consider, with respect to connective tissue and muscle, the chemical changes which result from the loss of the elements of water HHO on the edges of the molecules of creatine, sarkin, etc. This causes a state of torpor (paralysis, tetanus), which can be corrected through a chemical addition of water. Nevertheless, sulfur, calcium, iron and the blood salts cannot be supplied to the body by hydrotherapy if they are deficient. These must be furnished by a nutrition rich in minerals.

Rules by the Hydropathist Kneipp:

1) Use cold water treatment only on a warm body. Pre-warm it by a hot foot bath, a rest in bed, or physical exercise.

2) After each cold water treatment take care to re-warm the body by physical activity or bed rest. Do not dry the skin, let it absorb the water.

3) A cold water treatment is done correctly when it is followed by an agreeable warm and comfortable feeling.

4) With anxious people and children, start with warm water of about 30^0 C. (85^0 F.) and decrease it daily by one or two degrees.

5) A warm bath must be followed by a short wash with cold water, except in warm baths where an after-sweating is desired.

6) Cold water treatments last but seconds; warm treatments, however, minutes. Mild treatments are more effective.

7) One hour before and two hours after a meal no larger treatment is permitted, neither is swimming.

8) During and after each larger treatment keep quiet and yield to the relaxing effect on body and mind.

9) All rather important or tiring water treatments are best taken in the early hours before breakfast. The duration should be determined by the appearance of the reaction, that is, the feeling of warmth or cold, as well as the general physical state of the patient.

10) Further, wrapping of blankets or sheets — hot wet and cold wet packs — can be used; also herbal teas for practically all ailments as they are natural valuable remedies.

Vitamins (by the Publisher). In 1939 in the Julius Springer publishing house of Berlin, there appeared a new book *Theory of Nutrition* by Dr. Wilhelm Stepp of Munich, with 600 pages, price about eleven U. S. dollars. Stepp in this excellently written book tried to prove that certain parts of combustible food, that is, the carbohydrates, fat and protein, which were baptized "vitamins", are those that make man healthy and fit, while the proportion of ashes or minerals in food are either of minor or of questionable importance.

As a reply to this I published a paper showing that this was a chemical *untruth* and a fundamental *error,* from which might spring unforeseen mischief for the whole of humanity. The worst in all this is, that even people usually very intelligent, otherwise enjoying a high reputation for their knowledge and experience, can be misled by such theories which are blind to the chemistry of the human body. It is noteworthy that Stepp, in his book, does not say a word about the outstanding experiences of *Julius Hensel.* The gist of Hensel's teachings is:

a) that the protein-cementing minerals of the primeval rocks, granite, gneiss, porphyry, are the innermost *cause* of all processes of life on our planet;

b) that rocks and water are the most concentrated *egg substance* which under the electric sunlight transform into sugar and bread, milk and flesh, to guarantee our life, health and strength, and for this reason cannot be redeemed with all the world's gold;

c) that the minerals raise the capacity of *resistance* of human and animal blood and plant sap against chemical *decay,* putrefaction and decomposition;

d) that these vital minerals must be returned to the exhausted soil in the form of ground rock mixed with decomposed compost, so that the soil can produce anew wholesome food for men and cattle;

e) that the excessive use of nitrogen fertilizer NPK may well bring forth a rich vegetation (big crops are the main argument of the manufacturers of nitrogen fertilizer), but it cannot produce wholesome foodstuffs because the NPK fertilizer returns to the soil only nitrogen N, phosphorus P and potash K, whereas the

primeval rocks contain at least eleven different minerals, namely, the soda base sodium, the potash base potassium, calcium earth (limestone), magnesium earth, iron and manganese, united with silica, sulfur and fluorine, all together united with phosphate of clay;

f) that the so-called vitamin deficiency diseases are without exception *mineral* deficiency diseases and can be cured by food containing all the necessary minerals of the primeval rocks.

The nutrition theory of Wilhelm Stepp thoroughly deals with a series of apparently heterogeneous deficiencies in Vitamin A, all of which can be cured by cod liver oil. Thus, for instance, on page 284 the author says how amongst the poor country population of China, the keratomalacy (horny cornea) is cured by cod liver oil "possessing a really wonderful effect in the cure of that disease". On pages 305—306 are shown two pictures of hyperkeratose (leucine scurf formation) and keratosis (horny toad skin) which "disappeared within a short time after giving cod liver oil". On page 309 follows the explanation of how bronchitis was healed "most rapidly, in a few days, by administering Vitamin A (cod liver oil)". On page 313 is reported that in China a surprising number of the population, even children, suffer from calculus of the bladder and kidneys, especially among the poor and ignorant classes and that patients formerly with considerable calculus formation "remained free of symptoms for two years after receiving Vitamin A"' On page 310 there is a description of how the hydrochloric acid content of the stomach could be improved by giving three times five drops of Vogan (cod liver oil), thereby bettering the appetite, stopping diarrhea and increasing the body weight. Furthermore, the author reports on page 317 how ailments quite different from each other, like night blindness, diarrhea, decay of the cornea, pigment increase and anemia, could be cured by one single remedy, Vitamin A (cod liver oil) "in a wonderful way and almost with the certainty of an experiment".

According to the eminent knowledge and judgment of Julius Hensel, it is impossible that the nitrogenous hydrocarbons of cod liver oil possess "this marvelous healing power", but rather it is the *mineral* matter contained in the cod liver oil which the fish has drawn out of the salty sea water for its own body, namely: iodine, bromine, chlorine, and sulfur and phosphorus as well. Please remember that the combustible nitrogenous hydrocarbons are obtainable from all and any vegetation or animal substance, but *not* all the minerals indispensable for the normal formation of blood are obtainable since nitrogen fertilizer has been put on the market.

It was pointed out several times that the nitrogen carbon hydrogen substances, united only with mineral substances, can bring about (create) vegetable and animal forms; consequently, the mineral elements, as the movable bearers of combustible substances, have a far greater significance than the combustible substances alone.

The destruction of the effect of Vitamins. On page 416, Stepp reports that cod liver oil loses the antikeratomalatic (Vitamin A) but not the anti-rachitic (Vitamin D) effect, if one conveys through it, for 12 to 20 hours a current of air heated to 100° C. (212° F.) Likewise the pamphlet on an approved cod liver oil salve mentions that its vitamin effects are destroyed when air is conducted through it while heating up to 130° C, for three times 12 hours. But every chemist knows that chlorine, iodine, bromine, fluorine, phosphorus and sulfur are, all of them, substances subject to gasification; and iodine evaporates rather rapidly even in ordinary temperature despite its high atomic weight of 127, and despite its heavy vapor of the specific gravity of 8.7. As heating cod liver oil causes it to lose its vitamin effect, there still remains the chemical fact that the heat has driven out its easily gasifying mineral substances, and that precisely and *without doubt these mineral parts* are what possess the healing power "almost equal to a wonder."

First and foremost, it is the *hydrochloric acid* as well as the hydroiodic and hydrobromic acids which possess the capacity for imparting a greater solubility to other earths subject to difficult solution, and in particular to the calcium sulfate and phos-

phate. Ammonia hydrocarbon containing phosphates is contained in every gelatinous cartilage which shows an excessive growth (hypertrophy) if in the food there is not sufficient soluble calcium and magnesia (rickets). To such a hypertrophy of the cartilage, calcium and magnesia act as restraining factors since the elastic cartilage transforms itself into a limiting bony substance. Then, there is formed an ammoniacal calcium-magnesium phosphate, which, so to say, acts "petrifyingly," arresting the formation of further cartilage. Calcium and magnesia are undoubtedly limiting agents of equal strength in the face of ammonia, like sulfur in the face of phosphorus which favors growth. When cod liver oil is administered its content of iodine also enters into action, iodine being the organic matter of highest atomic weight, which, following the "right of the stronger," increases the potency of the protein-binding and calming effect of the *ashy* parts of our body according to the law of chain effects. In order to complete the "physiological harmony," minimal quantities of iodine and bromine are sufficient, in accordance with our original physical composition, confirming the statement of Paracelsus: "The size of the dose alone can make a thing non-poisonous." Hensel, then, surely did not hurt anyone when he repeated again and again: "More chemistry, my friends, only the study of chemistry can raise the veil in front of our eyes in order to further our physical and moral well-being," whereas, out of such vitamin and hormone theories, blind to chemistry and deprived of any mineral matter considerations, inconceivable harm to mankind can arise.

Vitamin B Deficiency — Beriberi. On pages 330-357 Stepp reports in detail on beriberi, found chiefly among the poor populations of Asia where the food consists mainly of *polished* rice. The disease, in the beginning, manifest itself as a weakness of the legs, hands and arms; later it results in paralysis until the patient, finally and in terrible agony dies of paralysis of the respiratory system, the so-called "shoshin." It is remarkable that the patient nearly up to the day the deadly shoshine breaks out eats his fatal food of polished rice, while pigeons pick up only isolated grains of this rice just not to starve, but they rush to get some unpolished grains, or green fodder, when it is thrown to them, even if they are already partly paralyzed. Man, grown soft and led on the wrong path by his degenerating domesticity, no longer possesses, to the same extent, this in-born protection and warning instinct.

The rice mills in India grind and polish the rice of the farmer free of charge, but retain, as a reward for their work, the *rice bran,* the *bran* being of high value as a nourishing fodder. One may gather from this how seemingly insignificant technical measures in the preparation of our food can render the *food* noxious or even *dangerous to our life.* In Europe also, along with the ever-growing number of large mills, the denaturation and devitalizing of the grain has gone now as far as 90% of the value of our daily bread. When grinding and polishing the rice by machines, not only the shell of the rice grain, rich in minerals, is taken away, but along with it a part of the albumin layer just below it, so that in the case of the thoroughly-ground rice grain only the actual grain containing starch flour deprived of most of the mineral substance remains. This denaturation of the rice is all the worse because rice, and also Indian corn (maize) are by nature poorer in mineral matter and albumin than the more precious kinds of grain such as oats, barley and wheat.

On the other hand, that part of the rural population which grinds its own rice flour remains unmolested by beriberi. In the most primitive but nearest-to-nature way of obtaining flour, the rice simply is ground by hand by means of a heavy pestle in a trough. It would call for double work if the rice grain had to be polished completely. For his daily food the Indian is satisfied with half-ground rice and remains in good health, thus there is less work and healthier food. That part of the population also remains free of beriberi which is using a mixed diet, for instance, one containing potatoes, vegetables, poppy seeds, onions, beans, etc., and which is in a position to season

the dishes with a little *common salt* or sea salt. It is the sodium chloride of salt that renders the walls of our blood vessels more conductive for the electric current, which is called into life by the *iron*-containing blood fluid. If, then, there is a lack of common salt in the blood, electricity, this indirect source of our vitality, grows smaller and the reaction upon all our organs is diminished. But beyond this, sea salt as well as the non-refined salt of the salines possesses the property (strength) to impart to the difficult-to-dissolve earths, and especially to the calcium sulfates and phosphates, a greater solubility while maintaining the blood albumin fluid.

If a change is made to a varied diet, the Indian leprosy, the pellagra of the maize-consuming population in the Balkan countries, scurvy of the mainly fish-eating inhabitants of the North, can be healed. The victims grow healthy again when entering a hospital and receiving a variety of food. All these diseases are neither hereditary nor infectious, just as little as are diabetes, rheumatism, cancer and consumption. Just according to whether the daily diet contains too little bicarbonate of soda or iron, or too little calcium and magnesia or sulfur, the forms and aspects of the disease and its intensity are different. Sound and full blood, evidently, is the best universal and protective remedy, and sound blood is the result of health-promoting, natural, unadulterated food.

A variety of foodstuffs obviously is necessary, since no food alone contains all the minerals essential to our body, quite apart from the content of fat and albumin. A cow or a goat could not remain healthy if fed only with a single species of grass; but since *God* has ordered that *all* herbs on meadows and in the mountains shall grow at different times, and that their forms shall depend on different mixtures of the mineral substance, the animal succeeds in absorbing the elements essential for the building-up of it's body substance, while all that is dispensable is discharged through the bowels. This explains why both, man and animal introduce nearly ten times as much food as would be necessary for the daily replacement of the consumed body substance, and why, in the case of one-sided *insufficient* absorption of food, a *shrinkage* or *decomposition* of the tissues in this or that region of the body must be the chemical consequence.

THE FOOD VALUE OF WHOLE MEAL FLOUR

Biologically grown whole grain is the foundation of healthy nutrition. Without it health and vitality can not be maintained in the long run. Whole grain was the basic sustenance of the Roman legions. Each Cohort carried a hand mill to grind it's daily requirements. Because individual grains have a natural protective coat, they are still capable of germinating after many years, if properly stored. (Prof. Dr. W. Kollath.) The turning away from the whole grain and it's replacement by sifted and bolted white flour, as well as white sugar, and their products during the last hundred years, is mainly due to vested interests. Together with excessive use of nitrogen fertilizers they are responsible for the spread of modern diseases and ever increasing degeneration.

It should be remembered that white flour looses more and more of its nutritive value right from the start, as the active food substance unites chemically with the oxygen of the air. The highly unsaturated fat acids of the grain germ oxidize and turn rancid. That is the reason why the housewife puts her butter into salt water. Wholemeal flour therefore is not suitable for long storage. By destroying the germ and the protective coat (bran cellulose) through ever finer grinding, white flour is made fit for storage. Both the destroyed parts are however of vital importance to our health. In the very sensitive flaxseed meal an essential part of the oil is oxidized within 10-15 minutes.

The naturally preserved grain should therefore not be opened until the very

time of it's use. The hand flour mill, one of the oldest tools, should therefore be part of every household that wishes to live a healthy life. It will be, together with biologically grown vegetables, fruit and nuts, the main pillar of health for the whole family. In other words for the production of fresh and healthy bread from freshly ground whole meal flour, mill and bakery belong under one roof.

The hexagonal aggregation of carbon recognizable in the center of the sugar molecule plus the solid union of the hydrogen atoms at the periphery by the opposite oxygen is repeated in the *cellulose*. It is the result of a condensation of the sugar molecules with chemical separation of water .Yet *cellulose always contains minerals* whose bases are organically united to the cellulose by the disolving power of the glycolic acid COO CHH HHO. The acids are united to the cellulose by the ammonia NHHH of the glycocol COO CHH NHHH. When the plants are burnt, the glycocol burns into carbon dioxide, water and nitrogen and the minerals remain as ashes.

Thus it is clear, that apparently insignificant technical and chemical intervention in the production of our daily food can make it noxious and even detrimental to general health. Proof: The oriental disease beri-beri is caused by *polished* rice lacking the vital minerals contained in the rice bran. The disease disappeared, once the government taught the people that they must eat whole grain rice ground fresh daily.

Truly, Enlightenment and Evolution go hand in hand!

LIST OF THE CAUSES OF DISEASES

1) Nutrition lacking vital minerals such as iron, calcium, magnesia, sulfur, soda, silica, etc.

2) Insufficient or too warm clothing.

3) Damp dwellings, lack of sunlight, foul air loaded with carbon dioxide, motor car exhaust, hot air filled with dust in the workroom and bedroom.

4) Nerve-wrecking passions and emotions.

5) Atmospheric influences.

6) Want of bodily or mental activity. "Idleness is the beginning of all vice."

7) Overwork or lack of sleep. "One hour of sleep before midnight is worth two after midnight."

8) Excessive eating as well as excessive use of alcoholic beverages, liquors, whisky, brandy, wine, beer, grog, etc.

9) Smoking of tobacco.

10) Sexual excesses.

11) Morphine, cocaine, addiction-forming poisonous drugs and narcotics.

12) Infection (inoculation, vaccination and V. D.)

LIST OF THE MOST EFFECTIVE PHYSIOLOGICAL AND HYGIENIC REMEDIES

Medicinal Herbs. The decisive factor is to apply all the healing substances hidden in the medicinal herbs for the health of the human body. Many herbs show a greater efficacy when used in their natural state, because of the dominating biological balance within the plant; and plants contain still unknown "rare substances" of pharmaceutical efficacy not yet chemically detected. Mankind's cumulative experience and tradition of thousands of years must not be underestimated.

The best known pupil of Hippocrates of the 2nd century was the Greek physi - cian Galen, who tried to collect the knowledge of Hippocrates, Aristotle, Dioscorides and Theophrastus in his book *Pharmacia Galenica*. Most of his medicines were of plant origin. Just look at the free living animals in the forest, on the mountain, on the prairie, how by their self-protective instinct they become their own doctors, select their grass, herbs, leaves, young shoots of twigs, etc., as unadulterated food and medicine from the full pharmacy of Nature; they stay healthy and supply man with savory

meat *without* any vaccine or antibiotica, white tablets or drugs.

Herewith follows the chemical explanation of a variety of herbs and remedies:

Almond Confection (Marzipan). Four ounces peeled sweet almonds, 2 ounces sugar, 1/2 ounce gum arabic and 1/4 ounce gum tragacanth, finely crushed to a paste. This serves for making almond milk.

Almond Milk. One ounce of almond confection is rubbed with a little water to a thin consistency, half a pint of water is then stirred in and the whole is passed through a piece of muslin. This is used against fever, inflammation and consumption; alternating with gum lemonade and physiological salt water as beverages.

Bitter Essences. Like tannin, bitter essences belong to the *glucosides* and are formed by polymerization (chemical multiplication) from glucose sugar through chemical separation of water, similar to the bitter caramel produced from sugar. Bitter essences, tannin and gums are three substances often found together in plants, often united with bitter resin, thus forming four different stages of oxidation of polymeric sugar. Because of the origin of bitters from aggregated sugar molecules they also have the property of gluco-, side to change into fat while liberating oxygen, and this explains their characteristic healing action.

Inasmuch as the bitters liberate *oxygen in electric tension,* this is communicated to the sympathetic nerve endings (abdominal nerve) and even to those of the cerebral nerves, for the effect is already perceptible on the tongue, which receives its nerves from a branch of the trifacial nerve. The electric effect which appears accompanied by a shudder and contortion of the face from intensely bitter substances (e. g., without exception from colocynth) puts the electrifying property of bitters beyond doubt. On account of this *electrifying effect* on the sympathetic nerve fibers these are now able to draw in arterial blood through the capillaries in the same manner as a stick of sealing wax attracts light movable objects, after it has been made electric by rubbing. This explains the efficacy of the bitter essences on all glandular organs, which are fed by the sympathetic nerve and which function imperfectly owing to blood stagnation in the cappillaries.

Therefore, the use of bitter essences extends to the liver, spleen, kidneys and uterus, as well as to the intestines, stomach and lungs. Accordingly, the bitter *wormwood* herb *(Absinthium)* has proven to be a general nerve reviver, which is effective even in treating the spleen, since besides the bitter essence of the herb, essential oil also participates in the nerve-revival effect. The wormwood herb (from which vermouth is made) has a *fever-curing* effect as well, like the bitter *willow bark* and *cinchona bark* of Peru, by restoring the functions of the spleen and kidneys. (The manufacture and sale of the green absinthe liquor is prohibited in France and Switzerland since its use causes brain paralysis.)

Similarly, the leaves of bitter *marsh trefoil (Trifolium)* are effective in liver troubles and even show some success in diabetes. The mountain *gentian root (Gentiana)* restores the functions of the *stomach.* Belonging to the same family is the herb *centaury (Centaurea)* which, similarly, stimulates a slow-function *uterus* just as the blossom of the *Roman camomile (Anthemis).* Both are used for the restoration of the menses when suppressed by cold or emotions. Lastly, we mention the quassia from which the glucoside quassine $C_{10}H_{12}O_3$ may be formed corresponding to the glucoside aloin $C_{15}H_{16}O_7$ from aloes. Even very weak cold infusions of a little quassia wood, steeping it only 2 minutes, have surprising effects in giving tension to the nerves of the intestines, showing increased circulation.

An infusion of the bitter and tannin essences of orange peel, wormwood, bitter trefoil, gentian and cascarilli bark with wine and potash to which cinnamon is added has a founded reputation as an "orange elixir" mixture in the case of indigestion.

Blood Transfusion. The natural method of introducing into the circulation new fresh *salty serum* through the lymphatics

replaces in a positive way the antiquated and often fatal method attained by the *transfusion of blood* from a healthy man into the artery of a weak invalid. Even the previous removal of the *fibrin* from the transfused blood hardly makes the method more rational. If it were in some cases successful this should be ascribed to the electrifying salty content of the serum, to which the worshippers of bacteria ascribe even the power of destroying bacilli and indeed not incorrectly for the so-called bacilli or bacteria disappear and are dissolved when, owing to a proper proportion of salts and earths, normal albumin is formed and disintegration ceases.

Since this is done best in the way *instituted by God,* by allowing the transfusion of physiological salts to take place through absorption by the *lymphatics,* I affirm that the previous removal of fibrin would not make the violent injection of blood into the opened arteries any more rational. Alas! What innumerable absurdities will be perpetrated as long as people continue to ascribe mysterious composition and properties to the *albumin* of the blood through sheer lack of chemical knowledge, whereas the blood albumin consists merely of a combination of partially-oxidized and partially-unoxidized sugar with ammonia, alkalies and earths. On the other hand, the blood *serum* contains the chlorides, sulfates and phosphates of alkalies and earths, heightened in its electric force by the formic acid and, owing to its formic acid, acts as a solvent.

Calcium Carbonate, Precipitated. In cholera morbus of children give 8 grains, stirred into a spoonful of sugar water. To be repeated whenever the diarrhea returns. In dysentery of adults, give 1/4 of a teaspoonful three times a day.

Calcium-Magnesium Phosphate. In connection with the use of hematite and washed sulfur together with physiological salt water in asthma, anemia, chorosis, epilepsy, scrofula, eruptions, glandular swellings, catarrhs, obesity, nervousness, gout, rheumatism, consumption, dropsy and general dyscrasies — take twice daily 15 grains, stirred into a cup of salted milk or coffee, or in a plate of soup.

Citric Acid $C_6 H_8 O_7$. Lemon juice must be viewed as triply-condensed glycolic acid COO CHH; COO CHH; COO CHH HHO. As a tribasic acid it can unite with 3 equivalents of ammonia and 3 urea. It is preferred in the sickroom to fruit such as apples, which contain malic acid as it is a double glycolic acid COO CHH, COO CHH, HHO and acts bibasically, because malic acid in the digestive tract decomposes easily into carbon dioxide and lactic acid, while citric acid forms with ammonia three groups of glycocol, which can be used in forming blood albumin for new bases of flesh. Citric acid is also useful in the form of gum lemonade, made by dissolving three heaped teaspoonfuls of gum lemonade powder in a glass of water.

Cream of Tartar. In the juice of grapes, bitartrate of potash (cream of tartar) is found united with sugar and in soluble form. As the sugar of new wine ferments into alcohol and carbon dioxide it is precipitated from the wine; but in sugar water it again becomes soluble, for the milky mixture of 15 grains of cream of tartar and a pint of water becomes clear when 2/3 of an ounce of sugar is added and stirred for a while. We thus have an antiseptic lemonade beverage uniting ammonia and urea, effective in fever and in dropsy.

Formic Acid. Anhydrous formic acid CHHOO is cristallizable like acetic acid. The medicinal formic acid (specific gravitiy 1.060) contains 25% of the anhydrous substance. In this degree of concentration it may, like the offical muriatic acid which also contains 25% of the anhydrous acid, be used mixed with sugar water for all degrees of feverishnesss. We give 10 to 15 drops of the formic acid with one glassful of sugar water. Its volatile distillable character recommends it for inhalation in consumption and in catarrhal affections, in order to neutralize the ammoniacal products of decomposition. Used internally it enters into chemical combination with the urea circulating in the blood and can ward off a transmutation into the poisonous carbonate of ammonia.

Formic acid received its name because chemists first discovered it in ants. It is

found in many substances, e. g., in pine needles, and is now made from oxalic acid and this from sugar. Because it occupies the primary position among fatty acids it could be called "primary acid." White pine needles are used in beverages as an expectorant.

Gum Lemonade. Three heaped teaspoonfuls of gum lemonade powder are dissolved in a glass of water. In consumption, dropsy, decomposition of the blood and inflammation it should be used alternately with physiological salt water. Among diseases showing disintegration of the blood we must include diphteria. The powder for gum lemonade is made of 40 parts sugar, 6 parts prepared gum arabic and 1 part citric acid. Ships which sail in the regions afflicted with yellow fever should have a sufficient supply.

Hematite Iron and Sulfur. After hemorrhages, abortions, in painful menstruation, troubles in the climacteric period, for hemorrhoids, chills and fever, rheumatism and gout, as well as in cases of paralysis, asthma, cramps, diabetes and general dyscrasy, once daily 8 to 16 grains of hematite and sulfur taken in a wafer or a gelatine capsule before dinner; in all cases half a pint of physiological salt water should be used daily. Iron and sulfur also remove *nervous irritation (insomnia)* because the sulfur of the blood keeps the phosphorus of the nerves in equilibrium, and iron exerts a beneficial influence on the morale.

Hensel's Breathing.

(See section Epilepsy, page 205.)

Hensel's Tonic. The preparation is as follows: Equal parts of the sulfate of the protoxide of *iron* and the sulfate of the oxide of iron in a common solution are decomposed by 4 equivalents of dissolved formate of calcium, using enough water so that 1000 grains of the solution contain 15½ grains of metallic iron. To this we add 1235 grains of acetic acid, 7630 grains of alcohol and 145 grains of acetic ether. After the sulfate of calcium has been precipitated the tonic is filtered. The solution is used for making tonic lemonade.

Thus, in every 100 parts it contains 1 part iron and 1 part calcium. Its formic and acetic acids enable it to correct the defective action of the spleen and so to break through the vicious circle caused by imperfect blood circulation, defective electricity of the nerves, defective production of intestinal juices and impeded new formation of blood and nerve material. So the paralyzing effect on the nerves of the ammonia produced by the congested blood in the capillaries is also neutralized by the acids. Its content of iron and calcium enable the white corpuscles, especially those formed in the spleen, to be converted into red corpuscles and this enables the blood to regain with certainty is capacity for chemically combining with the inhaled oxygen and so becoming useful to the vital processess of the nerves. At the same time the iron protoxide, combining as it does with cyanides, prevents further chemical decomposition of blood albumin which manifests itself by the separation of water (dropsy) and by cyanosis.

Hensel's tonic lemonade is made of 4 heaped teaspoonfuls of powdered sugar and 1 of Hensel's Tonic in half a pint of water. In addition, physiological salt water should be taken in the morning.

With Hensel's Tonic a complete change is often visible in four weeks treatment even in patients who have suffered from *chlorosis* (anemia) for months. In a relatively short time it restores to the female body the cushion of fat which is peculiar to healthy women. This is partly produced by the sugar consumed in the tonic lemonade and by the formic acid which produces a normal alkaline bile due to the increased supply of oxygenated blood to the liver. The fat consumed with food is thus more completely emulsified and then can be sucked up by the delicate terminations of the lymphatics in the alimentary canal. If even one night of strenghtening sleep can restore fulness to the cheeks, how much more can 30 whole days!

Nevertheless, Hensel's Tonic alone cannot cure some diseases due to the fact that the patient's blood has in the lapse of time become too watery, i. e., lacking in *physiological* salts. In such cases, blood salts, sulfur and silica should be given in addition. It is advisable to ask such patients if milk and eggs agree with them.

If they do not, these natural forms of food must be replaced by beef tea into which the yolk of an egg has been beaten. By means of its content of phosphates of potash and soda from the meat and the cooking salt which has been added improves the constitution of the salty blood serum.

Herbal Teas. Instead of Oriental teas, coffee and other beverages, herbal teas should be used daily at the family table. They have aroma and flavor and are healthier than the nerve-irritating Oriental teas and coffee. Instead of the coffee bean use roasted barley malt, roasted chicoy root and roasted figs. This wholesome brew saves your pocket as well as your nerves. Study herbal books for your health's sake.

Horseradish Syrup. Grated fresh roots of horseradish, marsh mallow root, licorice root and whole linseed are steeped in white wine in a warm place for three or four weeks, then strained and brown cane sugar added. A proven remedy for bronchial catarrh, coughs and colds.

Licorice Drink. Powdered licorice, gum arabic and sugar of 231 grains each, together with 62 grains of physiological salts, dissolved in a pint of warm water. It is a healing beverage in catarrhal affections, in coughs and consumption.

Linseed and Poppy Seed. These are genuine eggs containing condensed fat and protein-rich milk. When ground with water like almonds they yield plant milk, since fat, sugar, albumin and phosphates are the characteristic properties of milk. And the minerals combined with the seed protein are of particular importance for the poor overpopulated countries. Since Biblical times poppy seed has been added to the flour for baking bread in Persia where diabetes and leprosy are unknown.

Pectoral Powder of Dr. Kurella. In Berlin a glucoside remedy against lung diseases has been used for nearly 200 years, called Dr. Kurella's Brustpulver, meaning chest or lung powder. It consists of 2 parts powdered licorice root, 2 parts senna leaves, 1 part sulfur, 1 part fennel powder and 6 parts sugar. This remedy is useful not only for coughs, but also for hemorrhoids and for *constipation*. The explanation lies in the nerve-quickening supply of oxygen furnished by the glucosides and in the sulfur useful in forming red blood corpuscles which absorb the oxygen. It can be bought by the pound and may really be considered a food rather than a medicine. Watch your metabolism, namely, the vital functions of bowels, kidneys, lungs and skin.

That stagnation in the region of the portal vein is best removed by glucosides which furnish oxygen, may also be seen from the bark of the blackberry bearing alder *(Cortex frangulae)* and the rhubarb root *(Radix rhei)* as further examples. Both contain the same glucoside as senna leaves, i. e., chrysophan.

Peroxide of Hydrogen. In this substance one atom of oxygen is combined in electric tension with the atoms of water. This electrifying tension is transferred by the preparation to the tissues which it touches, so that their chemical decomposition ceases. Very evident is this action in the case of a "cold in the head." If diluted peroxide of hydrogen is snuffed up into the nose the cold is frequently removed at once. The preparation has at the same time a disinfecting action, therefore suppurating and putrescent wounds when washed with it become inodorous and clean and heal in a very short time after laying on a dressing with oil. Whoever has once used this remedy for this purpose, will ever after treasure its excellent qualities.

Ill-smelling sick rooms become inodorous if the concentrated preparation is used and discharged into the air with an atomizer while walking through the room. The explanation is that the ill-smelling materials are chemically burned into inodorous carbon dioxide, water and nitrogen, through the oxygen in electric tension. This is surely more rational than whitewashing with perfumes. In every kind of fresh wounds the preparation produces a rapid healing, almost while looking on.

Internally this remedy is also excellent in incipient catarrh of the windpipe and bronchia, in intestinal catarrh and in catarrh of the bladder. Even chronic cases of the latter ailment are cured in a day.

In consumption it supports the restoring effect of tonic lemonade. It suffices

to use thrice daily about 225 grains of the diluted solution which consists of one part of the concentrated preparation (corresponding to a tenfold volume of oxygen) and ten parts water.

In scarlet fever too, I have found repeated doses effective, accompanied with often-repeated rubbing of the body with vinegar, every time the redness of the skin returns.

Against a sudden-arising diarrhea from taking cold, a dose of 225 grains of the fivefold diluted solution (1 : 4) often proves effective.

Nowadays, this preparation, which formerly easily decomposed, is mixed with small quantities of phosphoric acid, whereby without losing any of its efficacy it becomes fixed and stable and thence reliable in its application. In using it for cleansing wounds the brush or cloth must not be dipped into the preparation as this would decompose it. The preparation must be poured directly from the bottle over the brush, the cloth or the compress. Also, do not use a metal spoon — use porcelain or glass.

Physiological Earths. These are combinations of fluoric, phosphoric, sulfuric, and silicic acids with calcium magesia and the oxides of iron and manganese in a suitable proportion.

The more finely ground these physiological earths are the more easily they can be assimilated through the gelatine sugar (glycocol) of the blood gelatine into organic substances, and the more reliable will be their curative action. The use of these earths accompanied by the simultaneous use of physiological salt water will always be effective in dropsy, anemia, chlorosis, catarrhal affections, spasmodic complaints, swellings of the lymphatic glands, jaundice, yellow fever, loss of hair, excessive obesity and rheumatism. The combination of physiological earths and of physiological salt water is superior to using any single substance, as the former offer *everything* that is necessary to restore the blood to its normal constitution.

Let us remember that individual *cells* should in no way be preserved, but on the contrary they must be subject to a continual consumption and renewal of substance. Remaining in good health rests upon the continuous renewal and transmutation of the whole organism. Unless substances are used up there can be no renewed growth, and the peculiarity and law of animal life lies in this.

Since cartilaginous tissue is allied to mucous tissue, it is evident that a cold in the intestines (intestinal catarrh) can actually be healed by cartilage broth from calf's feet. Therefore the idea of curing a diseased tissue with the substance of a kindred tissue is not at all queer. Organic substances should be included in our list of remedies as proved by the effects of citric acid, gum arabic, licorice, the starchy mucilage from potatoes, rice gruel, oatmeal gruel, etc.

The statement that in healthy men, animals and plants the mineral substances are contained in homeopathic dilutions which correspond to the third, fourth and fifth medicinal decimal dilutions, is an error, because the body of an adult of 150 pounds contains 6 pounds mineral substances and one quart of blood contains 123 grains mineral substance. Cereal grains yield between 1.6 and 2.2 ashy constituents from 100 pounds, sugar beets yield 1.05 and horseradish 2.5.

Further, we find that silicic acid is soluble, since, according to the temperature in 200 to 1200 parts of water it becomes dissolved, consequently also in warm blood.

Everything going into the stomach and into the intestines, as far as it is made use of in rebuilding the bodily substance, is absorbed by the chyle vessels, i. e., the lymphatics, and passing through various lymphatic plexuses it is transformed for the uses of the preservation of the body. Then it is forwarded through the thoracic duct into the venous blood where it enters the right half of the heart in which a thorough mixing process takes place, to which the valves of the heart largely contribute by forcing the current of blood to divide.

Physiological Salts. These consist of phosphates, sulfates, hydrochlorides and carbonates of potash and soda corresponding with the analysis of the blood salts made by Denis. They serve for mak-

ing the licorice drink and *physiological salt water*. For the latter, dissolve 123 grains of salts in one quart of water. It is a refreshing, agreeable health preserving beverage. For normalizing the blood serum it excels all the varieties of natural mineral water, if in addition to it 8 grains of amorphous silicic acid or magnesium trisilicate stirred into half a cup of milk or soup, are used daily. This *most natural of all the correctives of* the blood is useful in any and every kind of *acute or chronic disease and fever*. Mixed with equal parts of warm milk it provides the patient with new blood serum and nutriment for the red blood corpuscles. On account of the danger of diphtheria these salts should be in every family medicine chest. Use sea salt in the kitchen.

Rhubarb Root. A complete collection of medical treasures is contained in rhubarb root, i. e., about 9½ % of the glucoside chrysophan, 9% tannin glucoside, 11% sugar, 4% starch, 14% gum glucoside 4% vegetable albumin, 14% sulfate, hydrochloride, phosphate, tannate and oxalate combinations of potash, calcium, iron and 1% silicic acid. The remainder is cellular tissue and water. To be used in disturbances of the digestion, lack of appetite, inactivity of the bowels, in constipation as well as in diarrhea, 4 grains of rhubarb powder should be taken in a wafer or mixed with licorice or pectoral powder. I explain the action of the rhubarb root now, approved for centuries by its rich content of glucosides yielding oxygen and by the absence of soda and magnesia. Only potash and calcium are found in it; it seems that these two basic constituents exercise a tensive action on the albumin of the blood, which is essentially a soda albumin, according to the law of attraction between counterparts. The oxygen liberated by the glucoside quickens the nerve fibrils of the alimentary canal and since this electric excitation extends through the walls of the blood vessels, liver, stomach and spleen benefit thereby. In hypochondria, melancholy and other states of depression, rhubarb is a *sovereign remedy*.

Sauerkraut. Sauerkraut, made of finecut white cabbage and allowed to ferment in its own juice, splits its sugar content into 2 lactic acids with the result that it disposes other material in the digestive tract to a similar chemical decomposition. It is a widely-used winter food and medicine in Central Europe.

Silica, Amorphous. In connection with the use of washed sulfur, calcium-magnesium phosphate and hematite iron together with physiological salt water, amorphous silica is useful in asthma, epilepsy, obesity, loss of hair, cutaneous eruptions, nervousness, rheumatism, leukorrhea and diabetes. Sulfur and silica effect a radical cure for leukorrhea, yet in women thoroughly devoid of silica it must be given first in small quantities to prevent powerful reactions in a body entirely unaccustomed to it. Silica makes the muscles firm and warms the blood and serves as a connecting link between blood and nerves. Silica meal is added to flour in Sweden and many mineral waters contain dissolved silica, as does the bran of *whole* wheat bread and flour. Every day one to three times 8 grains of silica is stirred into a cup of salted milk, coffee or soup. It may be omitted if three times a day a dose of 15 grains of physiological earths is used in a similar manner as a corrective aliment for the blood. Also use *magnesium trisilicate*.

Tea for Consumption or Cough. Marsh mallow root, licorice root, chopped figs, St. John's bread *(Siliqua dulcis)* and whole linseed, in equal parts. A hot infusion benefits the intestinal canal and forms a useful support in treating consumption and all catarrhal affections.

Tea, Sudorific. A hot infusion of sheep's yarrow *(Achillea)*, camomile, elder leaves, linden blossoms, balm, rosemary or wild caraway is effective in treating colds, partly through the warmth supplied to the internal serous membrane, partly through the nerve-quickening essential oil peculiar to medicinal herbs. Since it normalizes the blood circulation, these infusions remove cramp and are especially recommended in uterine spasms arising from colds or disturbed circulation.

Vinegar. Common vinegar mixed with equal parts of water should be rubbed with a flannel cloth on back, breast, ab-

domen, arms and thighs, to be repeated in all kinds of inflammation and disintegration of the blood. As a beverage, sugar water mixed with vinegar is a remedy in every kind of *fever;* by its cooling effect it guarantees at once that the process of fermentation which accounts for the fever heat is stopped. *Lemon* juice and *hydrochloric acid* have a similar effect. Five drops of hydrochloric acid in a glassful of sugar water are sufficient.

Hensel's Wash. One-and-a-half ounces powdered ammonium carbonate dissolved in 1 1/2 pints of water with 1/2 pint of alcohol added. The back, breast, abdomen, arms and thighs are rubbed with a cloth moistened with this wash and as soon as the cloth becomes dry or warm it should be moistened again. This alkaline wash opens the pores of the skin so that it can do its part in exhaling the carbon dioxide. It is best used in the morning before rising. In cough and incipient catarrh it is of almost immediate effect.

Digestive salts consist of 30 grains dehydrated sodium sulfate, 30 grains sodium bicarbonate and 30 grains sea salt or unrefined saline salt, dissolved in one quart of warm water. A glassfull to be taken 1 1/2 hours after lunch and after dinner (or supper) when the chyme has reached the duodenum, so that the chyle is provided with the required power to keep the blood liquid and protect it from the formation of coagulated fibrin.

Further a tablespoonfull of freshly ground *linseed* will improve your digestion, physical and mental vitality.

Finally, experience shows that the effect ceases as soon as the oxidation of the *bitter essences* and oils by transformation into carbon dioxide and water is completed. The *natural and lasting electric revival* of our entire system results from the *normal blood salts* and the *oxygen* which is carried by the red blood corpuscles.

"Health is not all, but without health all is naught." — Schopenhauer.

The foundation of all knowledge. With all thy getting get a better understanding of the chemical processes of life, it is the foundation and essence of all knowledge. Return to God-Nature, obey its unfailing laws and it will reward you a hundredfold with:

JOY OF LIFE, BUOYANT HEALTH, WEALTH AND WISDOM.

THE CHEMICAL HISTORY OF CREATION

Since the physician Robert Mayer of Heilbronn, Germany, first expressed the equivalence of power by a number, we know that there actually exists in nature but one *unique* power (energy), regardless of what name we give it. I myself am inclined to call it "opposition" or "polarity", because the opposition or the heterogeneous character of all substances starts the cycle of attraction, movement, impact, heat, light, electricity, magnetism and again, attraction.

As such an expression has not yet become popular, it is advisable in order to be better understood that we use in its place a more common term. So let us say that the original power is *electricity,* even though this is but an aid, because unquestionably electricity is only a partial power and is by no means the whole power. Still, it is a known fact that electricity, inasmuch as it is held together in substance by suitable means, is able to produce light, heat, motion and sound, as well as magnetism and chemical unions. On the other hand, when we *separate* electricity into positive and negative halves, the chemical combinations are able to separate again.

It is therefore a fundamental error when geologists believe that different chemo-physical laws apply on a *large scale* than on a *small scale* and that one must take into consideration *length of time,* that one should not be stingy with time in geology. Actually, millions of years do not play any part. But, according to the opinion of such authorities, hydrocarbons or cellulose should, in the course of time, decompose into coal by the exclusion of air! Normally, however, such decomposition (hydrogen extraction) without oxidizing air is *impossible:* but according to the geologists it nevertheless is possible over a long period of time. No, the length of time neither multiplies nor adds to nor substracts from the equivalent of power, and the law of equivalence of power makes no exceptions. It maintains its validity on a large as well as on a small scale. Consequently, I shall strive to remove in this chapter a large part of the false teachings.

Above all we must learn to know our father and our mother, the earth and the sea with their pure clear traits, and for this purpose we must free ourselves from some scientific cobwebs such as Trias, Lias, Dyas, Keuper, colored sandstone, clay coal and other "exactly" detected strata which do not let the truth come to light.

As long as we are not informed about the processes which provided the *air* ocean with oxygen and nitrogen, the *sea water* with salt, and which covered the earth's crust with coal and chalk, it will be impossible to explain how the ichthyosaurs and whales, mastodons and rhinoceroses, the giant bamboos and ferns of prehistoric time and the forest trees of of the brown coal time came into being by primitive creation.

We must bear in mind that the creation of the earth was a physical-chemical process. And we shall find that animal and plant life cannot be regarded as separate creations, rather, there was an immediate *continuation* or true repetition of the earth's creation, a *continued vibration* of the tensional powers received as a dowry according to the law of the indestructibility of power.

Then we should ask ourselves: How could it ever happen that such necessary, organically-related sciences as the study of the formation of the earth egg (geology) and the study of animal and plant eggs (zoology and botany) have been split into so many divisions and that they have not yet been brought together although chemistry has been taught for a 100 years?

The main point of our task lies in the understanding of the tensional powers which our earth received as a birthright in the form of coal and chalk formation and which are not, as the geologists maintain, of plant and animal origin. I shall prove chemically that these are of celestial spherical, or of direct sun origin which do not need millions of years but, according to the equivalence of power, require but an astonishing short time for their creation.

Contemplating the earth I could not find the germ of life although I studied Mt. Chimborazo and Mt. Arrarat according to the best sources possible. Then I went to the *sun* and studied its elements acording to spectral analysis, but even there I did not find the substance from which a man could have been made; there I found only his ashes. And so I asked myself, how, if it were true that something should be added to bring such ashes to life, that God's "breath" was necessary to transform the lump of clay into flesh and blood? But so it was.

Moses reports in Genesis 2 : 7 — "And the Lord God formed man of the dust of the ground and breathed into his nostrils the breath of life."

Even *chemically* this is correct, because the creation of man occured during the *brown coal* time and he immediately set foot on porcelain earth, namely *clay* or loam, because brown coal (lignite) contains the melliferous clay (mellit) C_{12} H_{36} O_{30} A_{12}, the result of a conversion of *clay* salts united with oil and ammonium carbonate. The mellit base is intimately connected with our body substance as well as with that of the bees and whales, no less with the substance of the leaf and pinewood as we shall see later. Let us now endeavor to make this clear.

In the pharmacy one can buy "hartshorn salt" for raising the bread dough when it is baked. This takes place because the hartshorn salt becomes *gaseous* in heat and its gas bubbles raise the dough. At ordinary temperature it is hard like stone and transparent like glass, inasmuch as it has not lost water from weathering with age. When you hit it hard with a hammer it breakes into triangular and trapezoidal parallelepipeds of fibrous structure. It consists of 4 ammonia NHHH 3 carbon dioxide COO and 2 water HHO, and resembles with its cylindrical construction the fibrous, scentless *ammonium chloride* which is used by tinsmiths for soldering and which consists of 2 ammonia NHHH and 1 hydrogen chloride ClHH.

In a similar way as ammonium gas NHHH chemically condenses with *carbon dioxide* COO, it can also unite with nitric acid HNO_3, sulfuric acid HHO SO_3 and hydrogen chloride HHCl; and as it can unite with hydrogen chloride HHCl, it can also condense with hydrogen sulfide SHH, with hydrogen phosphide (phosphine) PHHH and hydrocarbon CHH.

Combinations of ammonia NHHH with 1, 2, 3, 4, 5 or 6 hydrocarbons CHH mean its union with oil and these amino compounds are called respectively: amino methyl, amino ethyl, amino propyl, amino butyl, amino amyl and amino hexyl. They appear partly combined with carbon dioxide, hydrogen chloride, sulfuric acid or fatty acids as split products of plant and animal substances in plant and animal saps. Thus we find in the stomach juice, amino methyl chloride, which is a conversion of common salt and gelatine sugar; in the bile, taurine, which is amino ethyl sulfate united with oil substance; in the vagina, amino propyl lactate; in perspiration, amino butyl acetate; in the distillate of our bones, amino phenyl (aniline oil).

Aniline oil smells like honey, but most of the other substances have a very bad odor; the worst odor is produced by a union of oil substance and ammonium which is distilled out of *hartshorn,* horse hoofs, skin, hair, wool, tendons and other animal waste in an iron retort and is called *stinking animal oil.* This has the very typical carrion smell. During distillation of this oil a large quantity of crystallized *ammonium carbonate,* i. e., hartshorn salt, simultaneously condenses in the cooled vessels as a by-product. This clearly proves that ammonium carbonate united with oil substance is contained in considerable quantities in *all* animal tissues.

It is also present in fish cartilage and this is what provides salmon and trout with the elasticity (peculiar to this substance in combination with oil) which enables them to fly several meters high upstream. The lobster also obtains its strong tendons from the ammonium carbonate combined with oil substance; the oyster and all marine shells use this to close their mussel lock and the cartilage

fishes of primitive times could not have built up their bodies if the salty sea had not contained oil and ammonium carbonate. The huge tendons in the wings of the eagle, the tiger's claws, the powerful springs in the feet of the kangaroo and the ostrich which enable them to leap, the claws of the lion and the bear, the tendons of the horse, hound and hare making it possible for them to run swiftly, and our spine which stays upright all on its own — all these are possible through the gelatine substance, that is, ammonium carbonate and oil combined with minerals. When one has grown so weak that one cannot rise from ones bed, it is because the ammonium carbonate as well as oil substance and minerals have been consumed and have not been replaced.

So we have every reason to ask how this tension-supplying substance - ammonium carbonate - arrived on the earth and from where it can be obtained when it is necessary to supply it to more people than are populating the earth at the present time.

Our earth originated from sun material. Accordingly, we can find no primeval substance on the earth which cannot also be found on the sun and its shell by light analysis. However, neither the sun substance nor its surroundings contain any ammonium carbonate, any oil or any gelatine. How can this contradiction be explained?

In order to find out where the ammonium-oil carbonate originated, we must accompany it and closely observe what happens to it from the moment it was flung into space by the sun. Then we shall surely find out how it came into being. Of course we must free ourselves from our combustible body, from all luggage, all books and all instruments (the microscopes with their glass and brass would melt), and start the investigation with only our common sense and Mayer's law of the equivalence of force. The main question is: *What* has been separated from the sun from which the earth was born and *how* is it possible that something is separated from the sun?

HOW HOT IS THE SUN

The sun shows by its heat effect such an intensive, glowing ocean that its heavy fusible metals such as platinum, irridium and gold are assumed to exist in gaseous form. This gaseous condition does not depend on such an intense heat as the melting point of platinum requires, because the tension of the difficult-to-melt metals is considerably reduced by the alloy with other metals, so that the sun heat is far less than is usually presumed. In this regard one must be careful not to exaggerate.

When the sun radiates great heat two main factors play a role: *first,* its overwhelming *mass.* It is similar to the *degree of motion* which represents a product of mass and speed, so that a slow-rolling canon ball still can crush my foot. According to this analogy the amount of the sun heat is a product of its mass and perhaps 2000^0 C. Sirius which radiates 88 times as much light as the sun, is not necessarily 88 times as *hot* but it has 88 times as much *substance.* It makes a difference whether the size of only a pinhead of molten lead drops on my hand or whether 1000 pounds of it runs over me. The same applies to the sun. By considering a single substance, e. g., the arsenic metal of our earth, we can judge in what proportion its weight is comparable to that of the sun.

England alone uses per year more than 1000 tons of arsenic ore, Prussia 1200 tons per year! So when I estimate 2500 tons used by all countries *per year* and I figure but 100 years, then I arrive at 250 000 tons. Therefore, it is more than modest when I presume there is but 50 million tons of arsenic on the sun, to which mass the arsenic substance of our earth has the approximate proportion of 1 : 300 000.

Figuring 50 million tons of arsenic, at least as much sulfur, as much antimony, as much iron, lead, copper, zinc, aluminium, calcium, magnesium, sodium, potassium - all of them in a molten condition - and in addition about 30 other metals, such a metal mixture, which ana-

logous to Wood's metal, is very easily meltable, surely displays by its overwhelming mass an imposing heat, even though the degree of heat does not have to exceed our earth experiences. When Professor Zollner figured a minimum temperature of 68 000° C. he overlooked an important fact which we shall discuss now: the *second* factor when judging the sun heat, which is the *diathermic* property of the air and the space ether.

Our atmosphere is penetrated by the sun rays while the air does not become heated. Balloon pilots and navigators tell us how icy cold it gets the higher they fly. Only where the sun rays *strike* the earth and accumulate by tumbling over one another, since the first are stopped in their motion and cannot move farther and the next suffer the same fate, accumulate with the first and are hindered from moving back by the ever-following new rays — only under such conditions can the earth become warm including the layer of air immediately above the earth. It follows that we very quickly notice the comfort when we move from the cold shady side of the mountains into a sunny region; the sun rays are *retained* by our clothes and collect therein.

But the air itself is *permeable* by the sun rays, in other words, diathermic. The same applies to the space ether which begins where our earth's atmosphere ends and which reaches up to the sun. Under such conditions the sun rays reach the earth practically unshortened, so that the heat is estimated as not exceeding 2000° C.

We must not imagine the sun to be a *burnable* substance; it is much more a *burnt* substance, an *oxidized* substance, an *ash*. As long as it shines it will radiate the same heat even if it loses regularly of its substance and becomes smaller, because in the same measure as we approach it its lesser heat pushes the earth ball less far away.

Such uniformity of the sun heat is guaranteed by the space ether, i. e., *hydrogen gas,* which is the very lightest element that exists. Yet we know that the chemical union of two atoms hydrogen with one atom oxygen means an equivalent unit of power, so that the hydrogen added to the oxidized elements increases the *tension* of the sun.

If, notwithstanding the regular supply of hydrogen gas to the sun, its heat does not *increase* but only fluctuates a little, this can be explained as follows: When the *tension* of the sun heat, *increased* by the supply of hydrogen, exceeds a certain degree, a corresponding amount of so-called comet substance is set free out of which ultimately all the small planets are formed. It is true that the heat of the sun can be greater one year than another; on an average, however, it remains the same and we need have no fears on this score. Now let us review its oxidized material (ashes) so that we base our observations firmly upon chemical facts.

COLD GAS FROM METALS

What must be done to transform platinum, gold and silver into *cold gas?*

Considering that sal ammoniac or hartshorn salt dissolved in water become *ice cold,* according to this analogy, platinum could be dissolved in *another* cold vapor, so that the transition of platinum from its solid to a mobile condition would prevent the appearance of heat, since only one equivalent can exist: motion *or* heat. But I do not know of such a vapor. Platinum chemically unites with chlorine, bromine, iodine, phosphorus, arsenic, sulfur and carbon nitrogen, yet these chemical compounds are solid in a cold state, not vaporous.

Therefore we must resort to platinum chloride and dissolve it in a gaseous chlorine compound of *another* metal and through the transition of the solid platinum chloride into a mobile gaseous condition it becomes cold, in accordance with the equivalence of force. From this standpoint it should be understandable that if a single gaseous metal chloride is *not* sufficient to gasify the platinum chloride, we must use *many* kinds of chlorides to break the tension. And if chlorides, bromides and iodides still do not suffice, one can resort to fluorine, phosphorus, arsenic, sulfur and nitrogen compounds as a means of cooling the solution.

In an extreme case if the vapor mixture should still heat, we could *expand* its *volume* considerably. In this condition *any* gas will cool, since a certain measure of temperature depends upon a certain *space*. Thus, a cubic foot of air heats when it is suddenly compressed to one-quarter of a cubic foot and when the compression piston is released the cool temperature returns.

No doubt there exists in principle the *possibility* of producing a cold gas mixture in which the following substances are contained: platinum, palladium, iridium, gold, silver, mercury, copper, lead, tin, zinc, cadmium, bismuth, antimony, arsenic, nickel, chromium, cobalt, iron, manganese, barium, strontium, calcium, magnesium, aluminium, lithium, sodium, potassium, rubidium, caesium. In this metal alloy the vapors of the following elements would be dissolved: tellurium, selenium, sulfur, iodine, bromine, chlorine. To this should be added a solution of silicon and boron in phosphorus and fluorine as silicon-boron-phosphorus-fluoride, further, a solution of carbon in nitrogen gas in the form of *cyanogen* gas.

When we add carbon and nitrogen as cyanogen in immense amounts, we cannot fail to obtain a gas mixture in which we can no longer distinguish whether we have before us cyanogen metals or sulfur metals, chlorides or silicon fluorides, phosphides, bromides, iodides, etc. The more numerous the combinations are, the greater becomes the discord.

As to *carbon* which is of particular interest to us, it could exist simultaneously as carbon disulfide, as carbon tetrachloride CCl_4, also as cyanogen CN in gaseous form.

However, the light potassium and the light sodium need no intermediary means to effect their dissolution due to their ability to distill, because the mass of the other chlorine compounds accepts them readily in gaseous solution. Similarly, the alloy of platinum *and* silver is soluble in nitric acid, whereas platinum by itself is insoluble therein and is thus simply taken in tow by the silver.

Yet *one* main condition must be observed in order to maintain the *cold* of the metal gas mixture. *No oxygen must be present.*

Oxygen Causes Gases to Heat. As soon as *oxygen,* this equivalent-unit creator, which is the most negative element, enters the cold metal-gas mixture, the elements are *heated* by their chemical union with the oxygen. This is in accordance with the law of the equivalence of forces since no *water* is present for chemical separation. Hydrogen gas cannot be mixed with the aforesaid elements; it remains outside of these in space. The oxygen not only causes the gases to *heat* but also to become *solid.* Therefore, if oxygen were combined with metals, such as tin, lead, silica, clay, especially the oxides of potash, soda, calcium and burnt magnesia, it would rain ashes, because the metals of these earths absorb the oxygen from all other oxides and oxygen has the greatest combustion power of all.

Such a condition exists in the sun. Part of its metals has in this way been changed into ashes while the ashes have been intensely heated in the process and have melted together into a *glass flux* which glows vividly. This glass flux also heats the sulfur, chloride and cyanide compounds of the metals in its periphery so that these now *radiate* and send their red, yellow, green, blue and white lights to us: strontium red, cooking salt yellow, boron green, potassium blue, phosphorus and arsenic white light.

The glass flux, however, floats in the middle of the metal gases like a yolk in a *bird's egg.* A gradation has been formed whereby the lightest of substances have retained their place *inside* and the heaviest *outside.* This is conditioned by the effect of centrifugal force since the sun rotates. For this reason we find the very *lightest* of metals in an oxidized condition as the innermost glass flux: aluminum, calcium, potassium, magnesium and silicon. This is *mica* glass flux which is aluminium-magnesium silicate.

OUR PRIMEVAL MOTHER, THE SUN

From a close study of the sun composition it is quite clear that all conditions on earth are recognizable as but a true copy and repetition of *sun life;* that the sun represents an egg and that this egg in turn lays eggs, hence, that the egg as such can be considered a complete unit, although by coming out of its shell and the addition of other substances it can lose its round shape, like the mountain chains, like our arms and feet and the spinal cord as products of our brain egg, like the roots and the stalk produced by the egg which we call barley. I should like to point out emphatically that the meaning of the sum of forces cannot be dependent on whether arms and legs, hearing and sight are present. Any of these attributes can be lacking without denying such a creature to be described as a human being and without his mental powers necessarily suffering. We must get out of the traditional bad habit of judging the essence of a thing by its outward form.

The fact that neither eyes, nor ears, arms, feet, a heart, a stomach, nor a brain is required to be a beautiful primeval *mother,* this we are taught by the *sun.* The sun is our primeval mother although she is only an egg. And the primeval father? This is the hydrogen gas in space, as you shall see later.

The bird's egg imitates the sun perfectly, because we find the very lightest substance, fat, as the yolk in the center, united with the same earths, namely: potassium, magnesium, calcium and silicon. Concerning the fat substance, CHH hydrocarbon, it replaces the aluminium clay $A_{12}O_3$ inasmuch as the hydrogen metal can take the place of aluminium metal with full right and the carbon replaces the oxygen.

The yolk of the bird's egg is surrounded by a solid membrane; then follow protein layers, which get thinner and more watery toward the surface. "More watery" means richer in hydrogen oxide HHO, therefore richer in metal oxide, because hydrogen is the noblest of all metals.

This same condition exists in the sun. The light mica glass flux is surrounded by a heavier *granite* glass flux, which not only consists of mica (potash-soda-magnesia-aluminium silicate) but also of calcium silicate. Then follows a heavy membrane of magnesia-free *porphyry* shell, consisting of silica, clay, potash, soda and calcium.

After this is a tougher slag containing more and more metals. First, layers of metal oxides: metal silicates and borates, barium, strontium, lead, copper, nickel, uranium, chromium, tin, zinc, antimony, bismuth, cobalt, manganese and iron.

Then follows a coat of molten fluorine, phosphorus and sulfur metals; and, finally, aurous chloride, silver chloride, platinum chloride, arsenic bromide, antimony bromide, sulfur iodide, all together dissolved in an overwhelming mixture of heavy chlorine-phosphorus-sulfur-carbon-nitrogen gas. With the precious metals, gold, silver and platinum, in its outermost zone the sun resembles an egg with a golden and silver shell.

THE EARTH RESEMBLES ITS SUN MOTHER

We also find all these substances in our earth, in the same sequence. The precious metals and the sulfur ores are nearest to the earth's surface, having been hurled outward by centrifugal force due to *rotation,* exactly as in the sun which also revolves and for this reason has to hurl the heaviest elements outward! As to the light-weighing but heavy, melting *mica* glass flux, its main mass is located deepest below the surface, the *granite* and *porphyry* partly under, partly above the surface. Indeed, nearly all primitive sun glass fluxes separated by crystallization and in cold condition became mingled through rotation, yet we still find intact glass fluxes, and the centrifugal effect on the heavy elements can be noticed everywhere on our earth.

In analyzing its building plan, one can recognize three different layers: 1) glass silicate, 2) sulfur-arsenic-fluorine-phos-

phorus-boron-carbon-nitrogen metals, 3) chlorine-bromine-iodine metals.

Because the chlorine, iodine and bromine metals contain the same elements as are found in the glass flux silicate and in the sulfur zone, (among others, potassium, sodium, magnesium, aluminum, calcium and iron) and further, because the sulfur compounds of the metals can exchange mutually their electronegative parts with the chlorine compounds of the alkalies, the sun substance forms, from this point of view, an integral unit, entirely in accordance with the various weights of concentrated protein layers around the yolk. Everything up to the glass flux gradually interflows without sharp demarcation.

At this stage I should like to point out that this is also the case in all our glands and organs. Even our blood vessels - of which anatomy distinguishes three different layers or shells, namely, tunica elastica, muscularis and fibrosa - only repeat the building plan of the sun inasmuch as they gradually pass over into one another and finally all three produce a certain mixture of electric tissue as connecting substance. In addition, the arteries and veins which are filled with blood containing *common salt,* as well as the nerves, are very often held together by a common covering.

It is important to note that common salt (sodium chloride) which is an excellent heat and electricity conductor, exists together with bromine and iodine salts in vapor form and that they fill the silica-fluorine-boron- nitrogen- phosphorus- carbon-sulfur zone of the sun. While the physical characteristic of this zone is only increased in strength by the gaseous condition, it maintains the electrical connections between the molten glass flux and the sulfur metals.

THE SUN IS AN EGG

This common salt and sulfur content we also find in the *albumen* (protein) of the bird's egg while the *yolk* contains no chloride or sulfur whatsoever. This is extremely interesting, because under such circumstances, from a chemical point of view, the hen's egg actually is a completely true reproduction of the sun or, to go further and to state the fact correctly, the sun is the prototype of all eggs in the entire world. The sun *itself* is an egg, the sun is real and genuine protoplasm substance. Now let us study the subject further.

At a heat of 2000° C. carbon dioxide, nitric acid, hydrocloric acid and sulfuric acid cannot exist because at that temperature their elements would be "dissociated", like cinnabar which disintegrates into mercury and sulfur vapors at a heat of 2000°. The vaporous *atmosphere* of the sun most probably consists solely of chemically-unconnected elements which only unite together in a lower temperature. However, the theory of dissociation does *not* apply to the molten *clay silicate* (porcelain earth) which forms the core of the sun and which is contained in gneiss as well as in granite and porphyry.

A porcelain painter at Königsee in Thuringia showed me how he heats his kiln muffles. He stated that during the baking of the porcelain there comes a moment when the optical phenomena *reverse;* i. e., the hitherto red-glowing porcelain suddenly seems to disappear in *black* darkness and the black platinum painting is visible in *white* color. This is the moment when the heat around the muffles must be reduced and the kiln dismantled; the product is ripe, under further heat it would spoil. I have attempted to explain this phenomenon from the fact that the heated space became entirely *vapor-free* — free of the hydrocarbon vapors of the turpentine oil and copaiba balsam which were used to paint the colors.

If this theory is correct then the black sun spots would be exactly the same; i.e., the porcelain glass flux in the sun center appears *black* as often as its surrounding space hydrogen gas forms a funnel-like hole. This is the moment when the heat of the sun muffle *must be* diminished so that the sun core is not damaged. Since this does not occur, it happens that a part of the glass flux whose surface is touched

by the space *hydrogen gas* suffers a separation of the *oxygen* from its oxidized metal core. Thus oxyhydrogen gas is formed which explodes and tears along a part of the sun glass flux, together with a part of the sulfur zone. This shakes the entire elastic mobile vapor shell of the sun so vigorously that we see northern lights *(Aurora borealis)* and all magnetic needles are diverted.

This presumably causes the comet phenomenon, and also the snow storm periods may be a result of it. Perhaps after a certain time a hot summer may follow as an equivalent, because since a cavity is formed in the sun shell as a natural reaction the dissociated vapors will gradually flow together again around the molten porcelain core of the sun. And since such an influx comes from all sides of the immense spherical shell — its outer diameter is 187 000 geographical miles — after a certain time instead of the former wave *valley* a wave mountain of dissociated sulfur metals will arise and this sends down to the earth a corresponding increase in heat.

One could ask how it happens that such a significant weight mass can *float* "sphere-shaped" in space. But we should remember that the sun has no weight at all. First, because there is nothing which presses on it or which *it* presses; the meaning of weight is justified only in connection with a certain base. Second, the floating power of the sun core is due to the enormous expansion of its hot vapor shell. Let us seek a suitable illustration for explaining this. A slab of bacon is set alight in a chimney. Its heat creates a condition of thin air around it and after the string by which it was suspended has burnt the burning bacon rises up out of the chimney since in the created vacuum it hangs, as it were, onto a balloon without a covering. It is possible that a slab of burning bacon can float from one village to another.

We can observe that space hydrogen gas up to 50 000 miles is set aglow by the blazing protuberances of the sun. In this case we are not only dealing with the very finest balloon gas but the same is also found in a glowing, that is, an extremely thin, vaporized condition. It is almost as if we were dealing with air-void space. The cubic content of this air-void sphere shell is of such overpowering magnitude that it is beyond our power to imagine. In geographical miles it amounts to 4000 billion cubic miles. To arrive at this figure, the mileage of the sun radius was set at 93 500 and 143 000 miles for the radius from the sun center up to 50 000 miles outside its sphere shell.

Since the content of the sun sphere, which consists mainly of gases, is only about 800 billion cubic miles, the air-void shell has five times as much space as the equally gaseous sulfur metal zone. Sirius which, at an equal distance, radiates 88 times as much light as the sun, and Capella, which radiates 360 times as much, permit us (analogous to the burning bacon) to consider the mass of fixed stars as quasi weightless.

Why does the sun not explode? - since its shell is filled with explosive substance? Chlorine and nitrogen are also present in amazing quantities, and nitrogen trichloride when brought into contact with carbon and hydrogen has an extremely explosive power. A single drop on a plate of lead when touched by the oiled end of a long stick is sufficient to throw the lead plate vertically through the table. One drop! The discovery of this chemical compound cost the French chemist Dulong an eye and his right hand.

The reason why chlorine, nitrogen and carbon with the surrounding hydrogen do *not* explode is twofold: first, the elements are "tamed" by admixture of extraordinarily-varied, strange materials, similar to the way nitroglycerine is made harmless by mixing it with kieselguhr and gun powder by mixing it with fine sand. In addition, the substance laid between chlorine, nitrogen, carbon and hydrogen is *exceedingly* fine, that is, gaseous, thus ensuring complete enclosure. This explains the second reason why nitrogen trichloride cannot explode. It cannot explode because it has already exploded. The gaseous condition of the dissociated elements indicates the *products,* or the equivalent of a completed explosion. Only condensed substances can explode.

This leads us to believe that our sun presumably is a sister of Capella and

Vega, born of the same mother. And the other 1200 million stars? And the Milky Way? Once on the road of investigation we may not pass by this point without endeavoring to obtain an idea as to how *all* these fixed stars and milky ways were created. Have all these questions not already tortured ingenious minds? Goethe made his *Faust* say:

"That I understand what *holds together*
the innermost of the world,
know I the might and seed of all work."

If Goethe were to write these words today he would change them to read: "*separates* forever" — because the nature of creative power is that of opposite elements automatically driven *together;* but it requires a force to *keep them apart* and this must be an almight force.

In order to recognize this we must first of all observe the sun! In its core we find an immeasurable quantity of oxidized substances in the form of glass, that is, oxygen in chemically condensed condition. Oxygen almost *without volume!* For silicon has a specific gravity of 1.4 while dehydrated silicic acid, $Si\,O_2$ has an equal specific gravity, therefore the oxygen gas which is 1700 times as *light* as water in its condensed state has become 2.4 as *heavy* as water, or out of about 4080 volume parts, 4079 are lost.

A similar relationship exists in the clay or aluminium oxide $Al_2\,O_3$ and all other components of the sun glass flux, i. e., calcium, magnesium, potash, soda, manganous oxide, ferrous oxide, etc. We can therefore say: a piece of granite contains so much oxygen that in the form of gas it would be 4000 times the volume of granite, or, if we transform this gas by hydrogen into *water* it would still have almost 2.5 times the volume of granite.

HYDROGEN GAS IN UNIVERSAL SPACE

The space of the universe actually contains *hydrogen gas* as the *universal* medium by which the entire world of the stars is commonly enclosed. Since this gas exist in inestimable quantities because the universe is infinite, there can be no question but that there is plenty available to transform *all* the oxygen out of *all* granite, i. e., the oxygen from *all* molten glass fluxes of *all* the stars if this were extracted, into *oxyhydrogen gas,* which consists of two volumes hydrogen and one volume oxygen: HHO.

If we think of an explosive weapon applied in such a great quantity as contained in the tremendous dimensions of the star Sirius in the form of molten porcelain glass flux (silicates of potash-soda-magnesia-manganese-ferrous-oxide-limestone clay) and further of all the porcelain flux of all the remaining 1200 million stars and the substance of the Milky Way, this provides our imaginative power with an almost incomprehensible idea of the quantity of power stored up in the shining space bodies: the stars.

From whence came these shining space bodies? How were they created? For a long time chemists have suspected that all elementary substances were created through condensation of the space ether which they called hydrogen gas. They believed to be able to conclude this from the numbers of atomic weight. The case is as follows:

If I burn 24 grams of magnesium tape, 40 grams of magnesium ash or burnt magnesia will result, because the 24 grams of magnesium metal chemically united with 16 grams *oxygen.* Also, burning 40 grams of calcium metal with 16 grams oxygen form 56 grams of burnt calcium or calcium oxide; 12 grams carbon with 16 grams oxygen form 28 grams carbon oxide; 200 grams mercury with 16 grams oxygen form 216 grams mercury oxide; and 2 grams hydrogen with 16 grams oxygen form 18 grams water. It follows that a substance by combustion does not diminish but increases because it unites with a second substance during this process.

The same quantities of the above metals can burn with 32 grams sulfur, with 71 grams chlorine and with 160 grams bromine, forming sulfur metals, chlorine metals and bromine metals.

Any given metal never needs less or more of the substances oxygen, sulfur, chlorine or bromine for its combustion. No matter how often one tries, the same

amount of weight always results because each metal has its definite weight number which does not relate to any other metal; exceptions are nickel and cobalt which have the same weight number (twice 29.4) and which furthermore are similar in many other respects. (Atomic weights of 1890.)

The figures thus arrived at were called atomic weights, because they reasoned that if substances in larger quantities always unite in such definite weight proportions, then the same proportion of weight exists in the single atom or the smallest particle of substance.

The above-mentioned figures (24, 40, 12, 200, 2, 16, 32, 71, 160) are plural in relation to the atomic weight figure 1 of hydrogen. Can we therefore conclude that all substances originated from condensed hydrogen gas? Many facts seemed to indicate this. This supposition was, however, difficult to explain because the atomic weight of many substances did not have a round figure. For example, the atomic weight of aluminum was twice 13.75; of platinum 197.4; of rhodium 52.2; of zinc 32.6; of palladium 106.6.

I was the first person who considered it more logical not to examine each substance individually but as fragments which together comprise one complete whole. In this manner I have arrived at some surprising conclusions:

Iridium 99, osmium 99.6, cobalt 29.4 and iron 28, together have an atomic weight of *256*.

Mercury 100, tin 59, rhodium 52.2 and zirconium 44.8 together, again make *256*.

Silver 108, arsenic 75, antimony 61, magnesium 12 = *256*.

Thallium 102, tungsten 92, potassium 39, sodium 23 = *256*.

Lead 103.5, barium 68.5, tin 59, titanium 25 = *256*.

Bismuth 104, tungsten 92, uranium 60 = *256*.

Gold 197, tin 59 = *256*.

It is peculiar to note that one atom each of gold and tin, also two atoms each of iron 28 and mercury 100 give the figure 256. Did the tough iron and the liquid mercury originate from the two metals gold and tin or is the reverse the case?

If we now take into account two or more atoms instead of one only, we see further that the atomic weight 256 again is but a fraction of its fourfold, namely *1024*. This figure 1024 is the tenth potency of the figure 2, i. e., of the chemical effect of hydrogen gas, because two weights hydrogen gas burnt with 16 weights oxygen gas supply 18 weights water. For example:

	each		
4 gold	197	=	788
4 tin	59	=	236
			1024
4 lead	103.5	=	414
8 copper	31.75	=	254
4 potassium	39	=	156
10 calcium	20	=	200
			1024
4 silver	108	=	432
4 arsenic	75	=	300
4 antimony	61	=	244
4 magnesium	12	=	48
			1024
4 chromium	26	=	104
40 sodium	23	=	920
			1024

and so forth.

From these relationships in the tenth potency of two hydrogen gas to the various metal groups, as I have illustrated by 60 calculation examples in my main work, *Das Leben* (Life), it is no longer difficult to recognize that indeed the heavy metals were created by *condensation* of the gaseous hydrogen metal, followed by a subsequent *separation*. But how could this happen? To answer this question, permit me to present the following theory:

THE FORGING PROCESS IN CREATION

When two iron rods are being forged on an anvil, without fail, sparks will fly. The sparks consist of small glowing iron parts and because they absorb oxygen out of the air they transform superficially into magnetic oxide of iron. In nature we find considerable quantities of this magnetic oxide of iron. It forms the magnetic ironstone which has the power to retain metallic iron of which the crystal has a

cubic form.

The atomic weight of iron is 28. This figure corresponds to four times the number of axes of a cube, of which there are 7 (3 main axes which pass vertically through the center of the 6 cubical surfaces and 4 auxiliary axes which cross diagonally the 8 corners of the cube).

In nature nothing rests on coincidence. The relationship of the number of the atomic weight of iron 28, the atomic union of magnetic ironstone (6 iron to 4 oxygen) and its crystallization according to the cubical system, supports the assumption that such general distribution of natural "hammer beats" must be the result of a gigantic *forging process* which happened at the beginning of the work of creation, although of course neither *hammer* nor *anvil* were used.

By forging together two single, small iron rods a coherent longer rod is produced, and parallel to the union process as much iron substance is thrown off from the glowing place as corresponds to the atoms brought into closest union. Such a union at a certain place which calls for a splitting of substance at another place corresponds to the generally valid law of the balance of power. It is evident that a larger number of light atoms can be balanced by a smaller number of atoms of higher atomic weight, just the same as a weight of 500 grams can be replaced by 5 pieces of 100 grams, and vice versa. After this explanation nothing prevents us from accepting that, based on the chemical analysis of the elements, they are the equivalent of the work of the divine art of smithery.

The master work consisted of partly welding together the weightless hydrogen ether in the limitless space without anvil and hammer, to provide it with gravity by $2^{10} = 1024$ hammer beats, whereby as condensation and splitting products the modified elementary substances were created.

Regarding the figure 10 as an exponent, this is explained by the fact that it is the approximate square of the figure 3.1415926, which indicates the relation of the circumference of a circle to its diameter. It means making possible at the same time the impossible quadrature of the circle and the impossible cubification of the sphere by the divine creative power to partly transform the centrifugally-spreading hydrogen ether into angular centripetal crystallized metals. The excessive power is passed on in the form of inner *vibration* to the unchanged part of hydrogen. Is there not reason enough to admire this as a divine forging masterwork?

As to cubification, the calculation example explained above, clearly indicates its meaning.

The regularly recurring figure 4 means the four sides of a cube, the figure 2 refers to its two bases, whereas the figure 6 refers to all six sides of the metals and the figure 12 indicates the twelve edges. The figures 14, 28 and 42 correspond to the 14 half axes of the cube, whereas the figure 10 is the multiplication factor for the three main axes as well as for the four auxiliary axes and for the basic sides, corresponding to the logarithm of the figure 1024 for the base 2.

After the typical examples of the relationship of the metals complementing one another to the 10th potency of hydrogen gas, let us illustrate the electro-*negative* elements as polarization products or *reverses* of the electropositive elements.

	each		
6 iodine	254	=	1524
12 chlorine	71	=	852
12 bromine	160	=	1920
			4296
6 sodium	23	=	138
6 gold	197	=	1182
6 mercury	100	=	600
12 iridium	198	=	2376
			4296
6 fluorine	38	=	228
12 boron	11	=	132
			360
18 calcium	20	=	360
6 arsenic	75	=	450
6 iron	28	=	168
12 chromium	26	=	312
18 sodium	23	=	414
			1344
42 sulfur	32	=	1344

6 calcium	20	=	120
6 magnesium	12	=	72
			192
12 oxygen	16	=	192

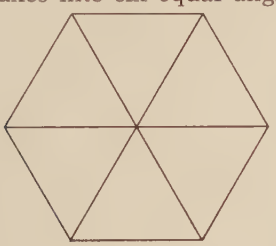
Silicon (28) corresponds readily to iron (twice 28)

	each		
6 potassium	39	=	234
6 sodium	23	=	138
			372
12 phosphorus	31	=	372

Highly interesting are *carbon* and *nitrogen*. In themselves they have no corresponding counter factor; however, they do when considered as originally related in the form of cyanogen. They then appear as the reverse of iron titanite.

6 iron at 28	=	168
12 titanium at 25	=	300
		468
18 cyanogen at 26	=	468

Regarding these polarized or electronegative elements, the figure 6 represents the relationship of the 4 auxiliary axes of a cube to the three main axes. Namely, there lie two auxiliary axes each with one of the main axes on the same level so that such a level is divided by three participating axes into six equal angles:



When in addition to the relationship we also consider the circumstance that such surface is crossed by the surface of the remaining 2 main axes *at a right angle*, then the relationship of the equator to the poles is explained. The electronegative elements appear from this point of view as complementary factors created by polarization, which form the axial or *polar counter tension* to the extended quadrature of the equatorial disc, like magnetism to electricity.

It should also be pointed out that the 4 auxiliary axes have a remarkable relationship to one another whereby, with the aid of both bases of the cube, they border on 8 equal triangles which divide the cube into 6 pyramids that are hourglass shape with their points directed to one another. When in the direction of these auxiliary axes the creation of the electronegative elements results, the compensating splitting cannot occur more easily in any location than at these border edges.

Finally, we must consider that the figure 1024 does not correspond to a *single* but to a *cubified* cube. When we begin with the efficacy of hydrogen, that is, with its paired atom which is indicated by the figure 2, and we increase this efficacy by 3 hammers and 3 anvils which act at *3 right angles* against one another, we get no further than the figure 8 which would be equal to a cubic condensation of paired hydrogen.

Only when this result of a centripetal condensation at 3 right *angles* is subjected to a power according to the cubic principle (inconceivable to the human imagination), but without hesitation and loss of time and permitting the movement without centrifugal splitting — only then could the cube number result from the cube number 2, namely 8 x 8 x 8 = 512. This is indeed only half of the figure 1024 which we derive from gold and tin, but this figure supposedly has *paired*, or even better, *halved* atoms for the metals. This theory, however, requires that after fulfillment of the cubification of three times third potency, a *repercussion* finally took place at the tenth potency and with that the whole became halved.

The elastic hydrogen gas which served to press together its equal halves (similar to the steam pressure of arsenic acid which transforms arsenic acid into glass) rebounded polarly at the close of the complete metal fusion to the base side and ceiling of the cube. The hydrogen tore the atoms into *two halves* with all the might of the ninefold potency, spurting them in all directions.

In this way the split atoms were forced to seek their related and completing counterparts and to start *movement, growth* and *life* without end.

By applying this knowledge of the origin and the relationship of the atomic weights of the chemical elements amongst themselves, as products of *condensation* with subsequent *splitting,* it explains all processes of organic growth to be *condensation and splitting.*

In such a way the following condensation products arise from sugar: tannin, starch, dextrin gum, hepta-dilactid, glucoside, stearin fat, caproic acid, ethereal oils and a host of new substances, whose origin from sugar we cannot detect with our senses due to their modified physical and chemical properties, the same way that we fail to detect that gold and tin, mercury and iron are metals created by splitting condensed hydrogen.

FROM GASES TO SOLIDS

There are many proofs that solid substance can arise out of gaseous substance. For example, carbon dioxide and ammonium are gaseous at normal temperature, but if they are excluded from air and are permitted to unite over mercury in equal parts, they will condense into a loose powder (ammonium carbonate). In the same way solid ammonium cloride is formed by a direct combination of hydrochloric gas and ammonium gas.

The beautifully crystallizing aniline red, which is composed of hydrocarbon and nitrogen, confirms the fact that various *types of gas* become solid and obtain weight when they condense together.

Why then cannot a *single* element, when it condenses by itself, become solid? It has to become solid when the force which presses on it is strong enough and when *heat is* continuously *withdrawn* from the space which contains the gas. This much is certain: Gas will heat in the same measure as we compress it. When, however, the produced heat is withdrawn steadily, the gas can be compressed more and more. In this manner oxygen as well as hydrogen gas can be transformed into liquids and if our tools did not have certain imperfections and if we could continue to constantly press further and to withdraw the created heat, we would eventually obtain *solid* hydrogen gas.

In many cases solidification of gaseous substance is not direct and immediate, but only takes place after it has reached the liquid stage. For example, water vapor turns first to fluid water and then to ice.

The condensation products of the universal ether experienced the same transition process. The resulting electropositive or metallic and electronegative or non-metallic elements fused by the penetrating enormous pressure partly into sulfur, phosphorus and fluorine metals; further, they fused partly into oxygen compounds of the metals which in union with the oxygen compounds of silica and boron form a material which we call molten glass and which we can copy. Another part of the condensation products remained gaseous in the created heat, particularly the compounds of iodine, bromine, chlorine and cyanogen with fluorine, sulfur and phosphorus.

From the glass-forming liquid material resulted after cooling, those ores and rocks which after again partly separating by crystallization, then formed our earth crust.

Now where did the pressure energy come from which pressed together the nearly weightless hydrogen ether into heavy substances and melted them together into a glowing fire of metal oxides?

Let us consider the sound waves resulting from alternating condensation and dilution of the air in the sense of wave crest and wave trough being separated by *resting* points. In this way we can regard the inborn elasticity or vibrating springy force of the ether which the chemists call hydrogen gas as sufficient moving cause. From then on, when this substance began to vibrate, *non*-vibrating passive *cross points* of the vibrating waves resulted. Since the ether substance monochord on which the vibrations took place did not suffer an interruption of its substance at the cross points, but on the contrary suffered *condensation,* these condensed knotted points must have brought

about a modified form of substance. This non-vibrating substance formed the negative opposition to the positive vibrating ether mass.

Oxygen is Created. Assuming that the thus created new substance was the electronegative *oxygen* which formed this opposition, so the basis was laid for a reciprocal effect between positive and negative material.

This assumption that first oxygen was created is not fantastic, it is only the normal result of the proportion of the sound waves to one another, because the atomic weight of oxygen is 8 times as high as that of hydrogen and 8 weight parts oxygen unite with one weight part hydrogen to become water. Now the number 8 represents the octave of the keynote or tonic, that is, the figure 1.

With the beginning of the vibration, namely, the *creation* of the vibrating ether, the opposing oxygen was created simultaneously, and now the thrusting weapons were available which, influencing one another, condensed reciprocally, because 1 weight hydrogen gas together with 8 weights oxygen gas produce oxyhydrogen gas. One kilogram of this gas (which is exactly the quantity which is required to create 1 liter water) at its chemical condensation creates a motion effect which at the first impulse of electric ignition is equivalent to 23,381 physical power units (meter kilogram). From this we can judge what force of motion was effected when the first basic material of *universal space* exploded.

Today we still change the explosive oxyhydrogen gas into water vapor by an electric spark. Three volumes oxyhydrogen gas then condense into 2 volumes hydrogen gas; consequently, there is no doubt that space destruction then occurs which is due to the oxygen. But the result of the final space *destruction* precedes a space *increase* which affects the environment by pressure. We can therefore not be surprised that the explosion which affected both basic materials in the space center resulted in the creation of condensation and splitting products of positive and negative material, so that sulfur (32) was produced out of the double-condensed oxygen (16). But the double-condensed sulfur (64) split into fluorine (38) and cyanogen (26), while the 16-fold condensed sulfur (512) could produce the split products iodine (254), bromine (160), chlorine (71), boron (11) and oxygen (16) so that the oxygen as first and last member closes the negative circle. How these electronegative split products required corresponding condensation products of the positive hydrogen as opposition and which in part attracted by them, I have already indicated on page 256 by the chemical compounds occuring in nature.

The relationship of the octave between silicon (atomic weight 4 x 7 = 28) and iron (atomic weight 4 x 7 = 28) is repeated. The electronegative silicon is as close to the tonic (1) as the electropositive iron metal; but silicon and iron oppose one another by their electric behavior. Therefore they are separated from one another by 8 x 7 units or tones. In a sense they form an octave of the octave which comprises 7 tones and when we accept oxygen as the first octave, then the oxygen compounds of silicon and iron formed the dominant tonic chord in the glowing heat. Indeed we can observe that iron silicate plays the major role in all basalt and lava masses and one-third of the entire earth's crust is estimated to consist of silicon dioxide SiO_2. Silicon by its harmonious relationship with oxygen, being its octave, was able to harmonize and hold it in chemical condensation. In silica there are 28 weights of silicon united with twice 16, equaling 32 weights of oxygen. Another large part of oxygen is contained in clay (aluminium oxide), in calcium and magnesia, in potash and soda, which together with silica form our *primeval rocks,* porphyry, granite and gneiss.

If we consider that $^{8}/_{9}$ths of the weight of ocean water consists of oxygen and only $^{1}/_{9}$th of hydrogen, this confirms the supposition that the electronegative oxygen which chemically condensed in the rocks and in the water is about equal in weight to the silicon in the metals of the condensed part of the space hydrogen. In the same way we can assume that the oxygen vibration knots can be considered as the *first* condensation product, proved by the existing quantities of chemically united oxygen.

According to physical fact, we may accept that all of the roughly 70 original chemical substances were produced from only two basic substances. (This book was written in 1890, so, of course with the subsequent discoveries the figure now stands at 102. ED.) We shall now wish to observe how these two basic materials were created by divine omnipotence out of naught. For this purpose these considerations will be of assistance:

1) The *union* of hydrogen gas and oxygen gas into water indeed takes place by a fierce explosion, but the *separation* of the two basic materials out of the water by electric current takes place very quietly without any violence.

2) The electrolytic decomposition of water into oxygen and hydrogen corresponds to a *regularly* functioning power and the storage of an effective power which appears when motion results from the ignition of the produced oxyhydrogen gas. It is evident that the chemical separation of hydrogen atoms from oxygen atoms cannot take place without external influence or power expenditure.

3) The mathematical value of such a power sum remains the same whether two opposite electricities are liberated from each other or whether they are both liberated from nothing. From the above explanation it is clear that the self-vibrating, elastic space ether hydrogen by its electropositive nature became active *simultaneously* with its electronegative opposite. This proves that both can be considered as directly emanating from a primeval power. If it is true that first of all we only take the substance of the space ether into consideration, its presence in universal space also represents in any event a continuously-working motive power which appears as an element of expansion as the result of omnipresence in universal space. Considering such a substance with the property of omnipresence one would be inclined to identify it as the creative primeval power itself if we did not know that hydrogen gas is incapable of thinking. The creative power surely thinks just as we do, or is there anyone who doubts this? Should he not see, who created the eye? And should he not hear, who created the ear?

Hydrogen gas is not capable of thinking; we can see this when we work with it. Therefore it did not invent *itself,* but it is the *emanation* of a thought dominating it. Since it has not invented itself but was invented, so it did *not* exist before it was invented and therefore it was created from *naught* together with its electronegative opposites, *thanks to the joy of the primeval power to create,* which we as creatures also inherited as a birthright.

Furthermore, hydrogen gas right after its creation splits into infinitely fine atoms, which proves the infinite dividing ability of the electric current which created such substance. But the chemically working atoms of the hydrogen always appear associated in pairs; they work, so to say, "yoked together" and this again indicates that they are not here by self-creation but are dominated by the omipotence of the Architect of all things.

4) Electric tension lasts only as long as the electric power lasts which creates the tension, e. g., the withdrawl of an electric body from the proximity of a non-electric body has the effect that the sum of the electropositive and electronegative electricity held apart in the latter again disappears or unites together into nothing. It follows that the power which created the chemical elements is *omnipresent,* otherwise positive and negative would again unite into nothing. The omnipresent primeval power everywhere accompanies what is has created.

When the electropositive and electronegative condensation products of the space ether came into intimate contact through the explosive power, they united chemically and became *glowing* and *shining.* This still happens today, e. g., when tin foil is hung in sulfur vapor. Our thinking ability which is caused by the chemical union of phosphorus-holding nerve fat with oxygen, is combined with an inner self-illuminating process, a weak reflex of the light source from which the universal building plan resulted. The Old Testament speaks the truth — it was God's light thought which created the universe:

"And God said: let there be light."

Chemical Union: Three Necessary Factors. Cabanis, the German ornithologist, said that the simplest and nearest must be the truth. "Simplex veri sigillum." Therefore, let us decipher from the simplest processes the general *natural law*. When two substances with their opposite poles unite into a cohesive group, we learn from numerous chemical processes the fact that this does not happen without an *equivalent*. Such an equivalent is mainly motion. Either the new group moves a certain amount at the periphery while it completely separates itself chemically, or the mass of the newly-formed group itself starts moving as if it tries to flee from the center. Such a movement then becomes apparent by expansion, tension or heat. A typical example of the creation of heat is that which is noticeable when aldehyde $C_2 H_4 O$ by chemical absorption of oxygen turns into acetic acid: $C_2 H_4 OO$. In other cases the chemical condensation is immediately succeeded by a chemical separation as equivalent.

Such a process can be understood by itself but we have by no means considered all the factors which form a part of the process. There are at least *three* such factors: namely, two factors which influence one another and a force or substance as third factor (catalyst) which *brings about* the union. We cannot, for example, unite hydrogen and oxygen or separate them without the assistance either of an electric spark or the addition of a substance which produces electric current.

To illustrate the assistance of a third substance I would mention that hydrogen easily unites with oxygen to form water, providing the oxygen clings to the *platinum* sponge and a stream of hydrogen gas is admitted. If, on the contrary, hydrogen clings to phosphorus in the form of hydride of phosphorus $P_2 H_6$, and oxygen is present, then the phosphorus acts as catalyst to condense the hydrogen with the oxygen into water but simultaneously the hydrogen causes the phosphorus to unite with oxygen thereby producing phosphoric acid which gives off light.

Phosphorus is on the whole a very *energetic* catalyst element. If a solution of phosphorus in carbon disulfide CSS is splashed on a sheet of paper, blinding lights which oxidize all substances into carbon dioxides, sulfurous acid and phosphoric acid appear immediately.

But phosphorus alone in pure oxygen gas will *not* create any light! It dissolves in pure oxygen gas but it is remarkable that it does not give *light* during this process. Light, heat and electricity can only be produced when at least *three* elements are present, or two elements and a *force*.

Neither does carbon unite with oxygen, unless either heat is added or a third substance with which it is chemically united, e. g., sulfur. What conclusion can we draw from such conduct?

Force is Substance and Substance is Force. The conclusion is that *force* and *substance* are equivalent; that substance is nothing but a *transformed* or stored-up force, a condensed force, a storehouse of force! The consequences:

All elementary substances are *forces!* But they are only forces if *three* of them are present. On this basis the production of electricity also requires at least three members and in this case we rightly speak of an electric "chain" since bridging, union and concatenation are synonymous. Such a simple truth that three factors are required for the transmission or bridging-over of a force is of the utmost significance in the explanation of all events in nature, big and small.

According to my theory, two halves originally must have appeared in the universe of which the heavier consists of oxygen and the lighter one of hydrogen. These two substances condensed partly into substances which contained both condensed negative and positive elements. As the equivalent of such condensation, the original motive force appeared again in the form of *heat,* because the change of a substance from a mobile, liquid or dissolved condition into an immobile, solid or crystallized condition is, by natural law, connected with *heat* in every single case.

To prove this is easily practicable in a laboratory when we let a concentrated solution of benzoic acid, which has been prepared with hot spirits, cool off naturally. At a certain moment the benzoic acid will again start to separate

small crystal flakes. If we now take the glass tube into our hands and shake the contents, the entire solution will immediately crystallize and the tube will become noticeably *hot*.

In the same way, heat appeared in the universe after a partial condensation had taken place. But the part of the hydrogen which had remained gaseous was not susceptible to such heat since characteristically it has an almost vanishing heat capacity. Instead of being capable of absorbing heat it has the property of *elasticity* and due to such an elastic tension it not only transmitted all created heat to the new elements which resulted from condensation, but also rejected them.

The magnitude of the motion with which these elements returned to the point of origin must have been so much more intense when the condensed basic substances increased in specific gravity, because the degree of movement is a product of mass and speed. As far as the speed is concerned, according to the law of oscillation, this had not diminished at all, but the substances had partly increased their weight disproportionately. Gold is about 19x850x16, approximately 250 000 times heavier than hydrogen gas. Under such conditions the clash of the electrically varying elements must have been so violent and their approach to one another so intense that, like the examples of the above-mentioned substances, phosphorus, sulfur and carbon, they performed broker's services to one another in order to enter into chemical union.

The chemical condensation which took place therefore required an equivalent, which in this case followed in the form of heat. But it appears that all available or possible heat was insufficient to produce a corresponding equivalent of the amount of infinite force which was spent. This brings us to a new consequence of Mayer's Law which, as far as I know, has not been considered until now.

Namely, every single partial force has only been given a certain measure. It could never happen that one of the partial forces, electricity, attraction, heat, chemism could explode time and space by excess and would assault the heavens in a gigantic manner. The domination over space and time belongs solely to light, this universal power. The partial forces, however, are restricted to precise limits and in a prudent manner it is taken care of in that a single force as soon as it reaches a certain point must split into new directions. Its force is now broken because its neighboring partial forces come into action as equivalents.

ELEMENTS AND FORCES

In order to grasp the interrelationships it seems indispensable to study the phenomenon of the maintenance of limits of the individual forces. To that end we shall consider the most common processes.

When Forces Reach Their Limit. Vibrations of more than 16 per second transform into sound. Water transforms into vapor as soon as the heat exceeds 100^0 C. (212^0 F.) Every glowing body transforms into gas as soon as it can no longer absorb additional heat. When the vapor form is no longer sufficient to furnish an equivalent for the driving power, electricity appears by electrolytical splitting as "ultima ratio."

Such an electrolytical splitting of the condensed primeval elements could not occur in the form of water separation, or hydrogen and oxygen, because such an equivalent would be much too light and trifling. Therefore, as a result of the intensive condensation, elements of greater specific gravity were created, potassium, sodium, iron, gold, arsenic, etc. Chemistry found that the spectra of these elements correspond to the light rays emanated by the substances contained in the sun. The inexhaustible quantities of condensed elements were equivalent to the unlimited power that created them.

But their number was not unlimited. It would appear that there are no more elements than main tones of the ten octaves heard by the human ear. Indeed, the analogy between the chemical ele-

ments and the sound and color tones is so clearly noticeable that it will further our knowledge if we consider this a little more closely.

The Universe, a Well-Tuned Musical Instrument. Two elements which are spread over the entire earth in such large quantities that to question where they can be found is best answered: "Where can they not be found!" These are the substances iron and silicon.

Iron, in combination with oxygen, forms magnetic ironstone $Fe_6\ O_4$. Silicon with oxygen, forms silicic acid $Si\ O_2$, and both, chemically united, appear as iron silicate in numerous rocks. It is remarkable that each of these two elements has the same atomic weight, 28, but the iron, similar to hydrogen, of which it is a condensation product, appears usually in two atoms, so that silicate of ferrous oxide corresponds to the formula $Fe_2\ O$, $Si\ O_2$. Since the figure 28 corresponds to the product of 4 times 7 intervals of the scala, iron and silicon are equally far away from the tonic hydrogen. If we trace this further we shall see the universe, without the slightest effort, as a well-tuned musical instrument, and we can get an idea why many a musical composition elevates us above all earthly joys and provokes an irresistible enthusiasm.

Superficial comparisons already indicate that the atomic weights of the elementary substances — i. e., the weight amounts with which they neutralize or harmonically unite with one another — are related to the atomic weight of hydrogen like the vibration sounds of the chromatic scale which, between 1 and 2, indicate the following proportions to the tonic = 1:

C	C#	D	D#	E	F	F#	G	G#	A	A#	B	C
1	$1\text{-}^1/_{16}$	$1\text{-}^1/_8$	$1\text{-}^1/_5$	$1^1/_4$	$1\text{-}^1/_3$	$1\text{-}^2/_5$	$1^1/_2$	$1\text{-}^3/_5$	$1\text{-}^2/_3$	$1\text{-}^4/_5$	$1\text{-}^7/_8$	2

The dominant (G) with $1^1/_2$ is half of the keynote and the octave which together form 3; in the same way, D und B, D-sharp and A-sharp, F and A, F-sharp and G-sharp, form the sum of 3.

Tritones consisting of keynote, third and octave, form harmonious consonances. From this point of view combinations of various chords can obviously be recognized in the silicate minerals which form granite, gneiss and porphyry (lithium, magnesium, calcium, manganese, iron, potassium, sodium, silicon, aluminium, etc., which are all united with oxygen as the lowest octave). The three main constituents, feldspar, mica and quartz, are combined in varying proportions in the three primeval rocks; quartz (silica), acting as the uniting substance. It is generally said that porphyry contains mainly feldspar and quartz, but little mica; gneiss, mainly mica and varieties of feldspar, but little quartz; granite, in roughly equal proportions, all three constituents in granular crystallized form. Feldspar and mica actually contain a mixture of three light alkali metals (potash, soda, lithium), three light earth metals (calcium, magnesium, aluminium) and three true metals (manganese, iron and cobalt). As a contrast to these tritones of the rocks, we find in sea water three electronegative substances: iodine, bromine and chlorine.

Quartz often contains pure sun glass flux because of its dissolving property from which the other glass flux constituents after cooling separate into crystallized form. The metals thus crystallized and indicated as veins (galena, sulfur and copper pyrite, etc.), which are proof of their origin, are found in gneiss rocks. The process corresponds completely to the present observations of glass blowers who experience difficulties in producing a red copper glass. If they do not stir the glass flux constantly with a clay rod the added copper oxide or copper pyrite will separate again. All symptoms indicate that our porphyry, granite, gneiss and metal rocks have been produced by sun glass flux.

Vibration and Light. From whatever angle we look at the elementary substances of the fixed stars and planets we shall undoubtedly always end up by respecting them as proof of the mighty power of God and as an expression of *vibrating motion* as in the sound and light waves. Sound and light cannot be excluded from the history of creation; they assisted in

the process and one was the result of the other. To summarize:

The first vibration produced tension; the tension caused separation, and modified substances (oxygen) appeared. Then followed explosive sounds, originating from the created oxyhydrogen gas and simultaneously *light was born* by filling the entire space with an exploding lightning flash by which the primeval gases were fused together into clusters of stars to which the light was transferred. From such an elementary lightning the remaining space ether gas was brought into motion by a shaking thunderbolt with the lasting effect that all created fixed stars began to revolve, continued to revolve and have never ceased to revolve.

Measure and Weight. "Pondere, mensura Deus omnia fecit" (God made everything acording to measure and weight) is the chemical saying. Once we have fixed our attention on the said proportions of figures between the atomic weights of the elements, then the unity of the forces in nature reveals itself in a new magical light.

The distance between a certain tone at the seventh interval equals a double figure of vibration and produces its octave, which together with the keynote gives the purest chord. In the same way the equivalent weight of hydrogen is 7 units lighter or more mobile, or more elastic than that of oxygen, which in proportion to hydrogen makes 1 + 7 = 8, because 8 weight parts oxygen unite with 1 weight part hydrogen to form 9 weight parts water. And the 9 decomposes into 3 x 3 so as not to forget the harmonious tritone.

On the other hand, 1 weight part hydrogen compares to 8 weight parts oxygen, a remarkable proportion in that, due to its excessive tension, it occupies twice as much space as the 8 weight parts oxygen. This is because 1 volume oxygen with 2 volumes hydrogen gas condenses into 2 volumes water gas by an electric spark, that is: the volume of the negative oxygen is completely swallowed or disappears, a *fact* which for *all processes* of life is of the *highest importance.*

So we have to consider that 2 volumes hydrogen gas weigh 1, and 1 volume oxygen gas weighs 8, so that 1 volume hydrogen gas is 16 times as light or as elastic as 1 volume oxygen gas. Such a proportion of figures in relation to vibrations gives in this case the deepest sound if they occur in a space of time of one second less $^1/_{32}$ second.

Sound, Weight, Space, Time. Every double number of vibrations gives twice as high a sound. Instead of the double number of vibrations, we now find that the hydrogen, in relation to the oxygen, has a *double* volume. Therefore, we must include *sound, weight* and *space* in the cycle of the equivalents of power — but also *time.*

Time plays an important role in sounds, in contrast to noises. It suffices to point out that all sounds, high and low, have the same speed of transmission in the same length of time, for instance, in the air 340 meters per second.

Sounds move in concentric spherical shells so that the way traveled by the sounds is equivalent to occupied space, or the space occupation of a sound is equivalent to its power. That means when a sound travels double space, it has double power.

According to this explanation, hydrogen gas has double power in proportion to oxygen because upon the electrical decomposition of water the produced hydrogen gas fills double the amount of space as the oxygen gas produced at the same time. Therefore, it can fill or travel through a second space measure in which the counter sound cannot be heard. Whether I say hydrogen travels a second space, or that it travels a second measure of time, is fundamentally equivalent, because each sound requires time to travel.

Thus we actually have to recognize *sound, weight, space* and *time* as equivalents of power, and also *substance,* because it is simply logical that if space could disappear totally, substance would also disappear and vice versa.

Time signifies the continuation or uninterrupted new effect or repetition of power. It is assumed that all power effects calculated by us, is understood to be only the first and single impulse. For example, one horsepower means the lift of 75 kilograms to a height of one meter within one second; after one second and at the

height of one meter the power is exhausted; if a higher or longer lift is required, additional horsepower must be applied.

It follows with mathematical certainty: If God had not persevered in leading the sphere music of the heavenly orchestra, the previously produced sounds would have died away a long time ago — and where would we be then, gentlemen of materialism?

In a vacuum there is no sound. If a clapper of a bell is operated in a vacuum no sound is heard. For sound to be transmitted a medium is necessary. So that sphere music can be heard, universal space must be filled with a medium which cooperates acoustically, the same as air when it transmits the sound of the clapper against the bell, to our ear.

Such a highly perfect medium is *hydrogen.*

It forms a kind of elastic springboard on which cosmic bodies are rolled around as if on a bouncy pillow, while at the same time the lightnesss and mobility of its atoms is so great, that they yield everywhere, wherever another substance or power wishes to pass. Consequently, hydrogen does not retain the heat received from the sun; neither does it swallow or break the light, whereas the sun rays in any other medium suffer reflection, refraction, resorption or polarization.

The space hydrogen is a positive and active material *without weight,* moving within itself. Physics teaches that hydrogen has the weight 1, but this is valid only in earthy relationships. We must remember that the meaning of large and small or heavy and light have but a relative sense inasmuch as one can make a comparison between two objects.

In universal space there is no other gas present that competes with hydrogen. For this reason it does not sink in any other medium and in this sense it is *weightless.* It would not be absurd to say: Oxygen, weight one; hydrogen gas, minus fifteen, meaning 15 additional volumes hydrogen would be needed before its substance would weigh as much as oxygen. In the same sense, water within mercury has no weight and rises with considerable power out of it; force must be applied in order to hold a bottle of water down in mercury. Therefore, space signifies a power which balances gravity, the same as 13-$^{59}/_{60}$ liter of water balances one liter of mercury.

From all these explanations we see that whatever type of force we imagine to be the original universal motive power, we always arrive at the same conclusion. Whether it is motion or vibration, we know that movement cannot be created unless two connected factors are unbalanced in weight so that one is more powerful than the other. And movements and vibrations produce sound.

If creation began directly with God's voice ("And God said . . ." Genesis 1 : 3), then the sound must have been accompanied by vibrations equivalent to intervals of time and space.

Light: The Point of Origin. The same must have resulted if the creative motive power originated from an infinite quantity of light, because the expansion of an abundance of light must of necessity have produced an empty space for itself in order to open up a way. But the entry of this new medium again required a corresponding equivalent. The abundance of light was, however, so powerful that no one equivalent was sufficient, but a whole series was required and even then practically all the light remained.

From such a standpoint the elements of the periodic system appear as only a partial equivalent and therefore are in constant dependence on the entry of light into space. They represent an equal number of separations or ray refractions by the appearance of various gravities and colors, as for example, the white silver, the yellow gold, the red copper, the green chlorine, the brown bromine, the violet iodine and the blue hydrogen gas in the heavens.

We see everywhere that the equivalent of force travels through all spokes of the physical vibration wheel in delightful variation and in an infinite circle, and that Jupiter's lightning or Thor's magic hammer always returns again to the point of origin, that is, to the light of the divine power of thought.

Light, vibration, tension, refraction, sound, time, space, gravity, substance, electricity, attraction, chemistry, heat and

again, *light*.

Force and Movement. Everything has its limits, also a certain type of force, and by separation as well as change of direction as a last expedient, the equivalent of an endlessly renewing supply of force is unconditionally paid for. Now if every single type of force has its limits, the *movement* possibility is also limited as sure as a string will break if it is forced to vibbrate more than 48,000 times a second.

On this basis, then, the separation of the two primeval elements (hydrogen and oxygen) had to follow as soon as they had reached the limits of motion possibility or motion force after their entry into space. Such a limit had been placed where both elements hit one another at the same moment. Since this caused a restriction of motion, the equivalent of this restriction was the same as it is for a collision of two trains — the carriages tumble over one another, penetrate into each other and the equivalent of only two trains is thousands of splinters; but the last carriages of the longest train are saved from the catastrophe provided their buffers have strong springs.

In this way, the two colliding elements also splintered into glowing potassium cyanide, arsenic iron, gold- and silver amalgam, pyrite, sodium chloride, magnesium iodide, silicon oxide, etc. But half of the hydrogen which had survived the encounter with the heavy oxygen, because of its double volume and 16 times more elasticity, remained *unchanged* and *intact*. The ethereal electropositive and active hydrogen gas maintained its dominant position in universal space; the negative, heavy, phlegmatic element *had to give way*.

An equivalent was available in the form of glowing heat for the vanished space. Heat always increases as soon as space is restricted. Consequently, when the infinite universal space with everything therein shrank to one point, for its equivalent an unlimited measure of electrically shining heat appeared with the effect that immediately the emptiness was again split electrolytically into positive and negative halves and the pulse beat of the universe immediately started to function again.

With this in mind, does the thought of nothingness not lose all its horror? The erroneously so-called *naught*, when it is correctly defined, is equivalent to an infinite measure of *force!*

THE BIRTH OF THE UNIVERSE

The Universal Lap. The sum total of the condensation of electropositive and electronegative substance can be seen with our eyes in the form of an equatorial belt of the earth which arches over our heads and which we call the Milky Way. This is the primeval creative lap from which, under the fertile influence of the ethereal hydrogen gas, new sun systems are born without interruption. The sun which shines upon us also sprang from this universal lap.

After its substance tore away from the galaxy-glass flux-bronze vapor, the glass compounds as well as the vapors of arsenic, sulfur, chlorine, fluorine and cyanogen metals which whirled around each other in the new medium hydrogen, gradually adopted the spherical shape. And what happened to the substance of the sun since it became independent?

Mother Sun and Father Hydrogen. Originally whirling eccentrically, as equivalent of the various influences (oxidation, heating, exploding and hurling effect) it became more subdued as time passed on and fixed its flaming corona like an embellishment for a virgin bride. And that is what the sun was because she was courted by the hydrogen ether to whom she gave the wreath and for whom she bore eight giant children at one time, that is, the planets: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune.

After this rich blessing of children she became more reserved. Yet it took so little to make her fertile that new sisters followed, namely, Vesta, Juno, Ceres, Pallas, and still newly-born sun children appeared between Mars and Jupiter.

Even though she was armored with sulfur and carbon which do not conduct electricity, galaxy juice flows in the sun and this contains palladium and platinum metal. Palladium absorbs 939 times its volume in hydrogen gas and platinum in

powder form has the ability to condense 250 volumes of oxygen and to ignite it when hydrogen gas is admitted.

Since on the earth platinum and palladium are always found together, and platinum ores consist of about the 50th part of palladium, we may also assume this proportion in the sun. This would explain the possibility that a connected stream of platinum-palladium-hydrogen similar to an electric chain passed across through the phosphorus-sulfur-cyanogen-bronze vapors and advanced from the extreme sun edge down into the glass flux mass and there deposited the space hydrogen which was absorbed at the outer edge, similar to a condition we find on earth where gold and silver veins lead across quartz veins.

The effect could be no other than the reduction of silicate of iron oxide and cobalt oxide into lower oxides due to a separation of oxygen. This separated oxygen gas together with the effective hydrogen would then form oxyhydrogen gas. Since this gas is wrapped by palladium and platinum it cannot by itself escape by exploding, because the platinum alloy would tear off a part of the sun substance and rush out into the space ether.

On its travel a part of the sulfur shell accompanied the torn-off part of the glass flux core, knowing that potassium, calcium and silicon were present in all zones of the sun sphere and these zones were knitted together like a network of connective tissue.

The entire torn-off mass consists of about one-third of sulfate, chlorate and phosphate ores and two-thirds of glass flux silicates, a proportion as found on the earth, where about a third of the minerals consists of silicates, while sulfur metals, chlorine salts and phosphorus compounds together with bases of silicates form the remainder.

The Earth Child. We now approach the question: What fate befell the first "protoplasm" born of the sun? We literally have to deal with protoplasm because it signifies the basic material which through the addition of suitable material develops into an individual form.

I have already stated that our earth belongs to one of the *first* born children of the sun, and from quite definite indications which hitherto have been incorrectly interpreted, we must draw the conclusion that the earth, together with the other planets, is still relatively young. All its events can be satisfactorily explained within a time space of perhaps 20,000 years.

The fontanels of the earth child at the North Pole are still not ossified. The bathing water of its hour of birth still smokes on the coasts of the Pacific Ocean, the Black, Caspian and Mediterranean Seas, and in Java and Iceland in the form of many mud volcanos. Islands arise from the sea and recede again; even in 1885 the snow mountains in the province of Granada, Spain, were elevated to such an extent that for the inhabitants of the western valleys the sun rose half an hour later. I refer to this phenomenon because I want to make it clear that also at other places changes in the earth's surface can take place since geologists claim that such a slow, unnoticeable elevation and sinking of the earth crust requires thousands of years, whereas the happening in Granada shows that it can take place in the shortest feasible time.

Neither were the slate, silurian, chalk and coal deposits, which were created by interrelated consecutive processes, the work of thousands of years, because coal does not by any means originate from forests, nor chalk from animals.

Sun Elements Passed On to Earth Child. In order to see what happened to the material of the sun substance when it was thrown into space by the exploding oxyhydrogen gas, it seems advisable first to have a look at the earth and to see if all materials which broke away from the sun are still intact there, or whether some of them are lost. Apparently nothing was lost because all elements which by light analysis are found to be part of the sun, also appear on the earth.

Sulfur is found in pure form in Sicily, on the Popocatepetl, in the Caucasus, in the Carpathians, in California, in China, in Japan. Chemically united it is available in many ores, in gravel and blendes in all parts of the world. It appears as though such sulfur pyrite etc. is stored like a sort of cementing material between the sili-

cate compounds, but in reality they have crystallized out of the mass. As far as the silicates are concerned, which originate mainly from the porcelain glass flux of the sun core, we generally find them stored in granular crystallized form in thousands of varying mixtures of feldspar, mica and quartz in the crust of our earth. The division made by geologists into porphyry-granite-gneiss rocks only serves to simplify the general picture.

From a chemical point of view the following relation appears between the three primitive types of rocks: *Clay,* which provides a refractory glass, related to silica in porphyry approximately 1:5, in granite as 1:4, and in gneiss as 1:3. Therefore gneiss contains the *most* clay and since it can hardly remain in glass flux, gneiss was *the first* to crystallize out of the general mass of the sun glass flux. Contrary to the crystallized gneiss, porphyry which contains the smallest amount of clay, retained its glassy nature in various places on the earth until the present time. When it appears as though it has lost glassy nature, intelligent glass makers use it to melt it to glass again without much trouble or expense.

Aside from the clay the *magnesia* content of the rocks also serves to draw a distinction for itself and is a confirmation of the above statements. Magnesia also provides a refractory glass and it is therefore contained in large amounts in the coarse granular crystallized rocks gneiss and granite, but in smaller amounts in porphyry. Geology should with gratitude accept my history of the creation of the primitive rocks out of melted glass as a guide in its intricate labyrinth. Professor Suess in 1888 in Vienna had the courage to close his lectures with the frank statement: "Gentlemen, geology as we have learned it up till now is wrong, but you, my audience, will live to hear the correct interpretation of the events which took place on earth." He should have added: "Hensel has already explained the main characteristics in his book *Das Leben* (Life)."

There is no doubt that the primeval rocks had original glass characteristics because here and there we actually still find well-preserved glass porphyry as it was produced by the sun as original glass flux, as so-called felsite porphyry found in the Harz and in Thuringia, both in Germany. We find it in particularly pure appearance, radiating full youth and shining like polished glass, in the vapor-free regions of the Ararat Mountains in eastern Turkey. At the end of the last century a pure felsite mountain was discovered in America.

As all the metals and minerals in the sun glass flux are also found on our earth, apparently nothing has been lost; however, something was added, namely *water* in enormous quantities, since we estimate the expansion of the water surface to be three times as large as the solid rock crust of the earth.

Where Did The Water Come From? Naturally, near the sun no water can exist, because its vapor, under the influence of the galvanic electricity which is formed by the metallic sun zone, would chemically decompose or, if this did not happen, it would absorb the sunlight completely.

He who considers how the sky darkens as soon as it is filled with the vapor of clouds; who once has experienced the thick fog which often settles on London and other cities; who once has entered a large laundry filled with vapor and in vain therein seeks to recognize the workers or any object; who knows from physics that water vapor absorbs about 8000 times more heat and light than our atmospheric air, he must admit: Upon or inside the sun no water can exist, neither in its nearest surroundings nor between the sun and our atmosphere. In our atmosphere, yes; beyond, no!

Since in the sun no water vapor can exist as such, because it would decompose in the electric heat into oxyhydrogen gas, thus oxyhydrogen gas cannot be present there, because it would ignite itself and transform back into water vapor. The conclusion is that neither water vapor nor oxyhydrogen gas but only free hydrogen gas can be present near the sun, whereas the oxygen is chemically united with potassium, sodium, silicon, aluminium, etc. in a fixed state in the glass flux of the sun core.

And finally, since free hydrogen cannot exist within the sun substance because it

cannot stand the heat and therefore would be hurled away, so no other place is available for it but outside in universal space; but there it is available in infinite quantities. Unfortunately, we cannot go beyond our atmosphere to catch a sample of space hydrogen gas and people use this to tell me: "You cannot prove it anyway, bring some down to us, then we will believe it." But such people would even then contest and contradict it while at the same time they expect others to accept their own unfounded hypotheses without criticism.

Now let us investigate independently the source of our sea water and what happened to the separated sun material after a relatively small amount of hydrogen gas by special circumstances advanced to the oxides of the glass flux of the sun core.

SEA WATER IS CREATED

> "And we all are created by the earth, which lay as favorite love in the embrace of Coelus" Ovid's **Metamorphoses**

"Coelus" is the space ether-hydrogen gas. Since the torn-off sun glass flux, wrapped in a vapor of sulfur - arsenic - iodine - bromine - chlorine - fluorine - phosphorus - cyanogen - bronze in the form of a long tail like all comets, was subjected to the hurling power of the exploding oxyhydrogen gas, its relation to universal space changed with one stroke.

Preparation Begins. Now a small part of the glowing sun materials, let us say a 200 000th part, in long ribbon-like expansion and surrounded by ice-cold, undiluted hydrogen gas, traveled with a speed of four miles per second through ever new inexhaustible regions of this gas, absorbing it with all power.

The vapor shell surrounding the glass flux contained the heavy fumes of arsenic, antimony, fluorine, sulfur and phosphorus which have a strong chemical affinity for uniting with hydrogen. In addition, the hot fumes of potassium, sodium, magnesium, zinc, cadmium, iron, copper, platinum, silver and gold, dissolved in chlorine, fluorine and cyanogen, also floated in the same shell.

Since, in addition to sodium chloride (common salt) which is an excellent electricity conductor, numerous other chlorine metals were also present, we can unquestionably assume a multiplied electrical conducting capacity of the gas shell in relation to pure common salt. This is particularly true if we consider the large quantities of electronegative arsenic metal.

In this connection I recall a phenomenon which frequently has appeared in the laboratories of pharmacists when wallpapers were examined for their arsenic content. A little pure hydrochloric acid Cl HH was poured over a small quantity of pure zinc metal. The chlorine Cl then united with the zinc metal into zinc chloride Zn C_{12}. The hydrogen HH was liberated and could be lit when escaping from a small glass tube. The hydrogen flame could then be extremely fine and the hydrogen development quite slow so long as only zinc metal was used. However, when a little iron was added to the zinc metal the process was much faster, because a new link had been added to the electric chain of zinc hydrogen and chlorine, and it resulted in lively excitement. But as soon as another small piece of arsenic-containing wallpaper was put into the apparatus the liquid immediately started to work so violently that if the hydrogen stream were again lit it would produce twenty times as large a flame. The escaping gas then contained the arsenic metal of the wallpaper coloring dissolved in hydrogen. This violent development did not cease until all arsenic particles had escaped.

We have stated that the sun shell contained zinc chloride, iron chloride, sodium chloride, gold chloride, copper chloride, etc. Now arsenic was added and all this was contained in the hydrogen medium. The result was that all arsenic transformed into arsenic hydride AsHHH within the shortest possible time because the dense chain of numerous chlorine metals increased its electro-chemical tension incalculably. Furthermore, the arsenic itself

was assisted by eletric chain links in the form of antimony and sulfur. We can therefore judge with how much greed these hot vapors, supported by a sphere of chloride metal vapors, sucked up the space hydrogen while they transformed into arsenide antimonide and sulfide of hydrogen.

But they did not *retain* the hydrogen, because the sun glass flux contained *oxidized* iron, lead and copper which were transformed into arsenic iron, antimony lead and copper pyrite by hydrogen arsenide AsHHH, hydrogen antimonide and hydrogen sulfide SHH. As equivalent of the chemical condensation *water* was separated:

$$Fe_2O_3,\ As_2H_6 = Fe_2As_2,\ H_6O_3$$
$$Pb_6O_3,\ Sb_2H_6 = Pb_6Sb_2,\ H_6O_3$$
$$Cu_2O,\ SH_2 = Cu_2S,\ H_2O$$

The same fate was furthermore experienced by the ironstone, lead and copper ore, the earths of tin, calamine, bismuth, cobalt, zinc, uranium, strontium and barium oxide. United with silicic acid these were contained by the glass flux from which we find them separated.

It happened thus that with every distance covered by the sun material in a second not only more *water* accumulated, but also *clay* and *silica* were liberated to which metal oxide was attached in the form of glass.

$$H_2S,\ Fe_2O,\ Al_2O_3,\ 4\ SiO_2 = Fe_2S,\ H_2O,\ Al_2O_3,\ 4\ SiO_2$$

Sea Water and Sea Sand. While the water dissolved the available sodium chloride, NaCl, and other chlorine compounds, the following originated: a) the salty *sea water;* b) the *sea sand* consisting of separated silica and magnesium-aluminium silicate; and c) the *slate* material, mainly composed of clay with mica ore and silica, which in a greatly varying mixture with sand sank to the bottom.

In this process various factors combined to effect a substantial cooling:

1) The separation of oxygen out of the metal oxides by the reducing cold hydrogen.

2) The separation of water from the union of hydrogen sulfide with iron oxide, etc.

3) The dissolution of sodium chloride in water.

4) The separation of silica and clay from the glass flux.

Each separation of one atom oxygen by two hydrogen from a chemical union means a unit of power equivalent. Therefore the cold space hydrogen gas must have lowered the temperature of the sun material (our comet) to the same degree as it separated oxygen.

Wherever the created water touched the glowing glass flux, it had to *deglaze and crystallize,* so that the granite rocks show a crystalline structure. When accidentally not everything deglazed (since we still find felsite porphyry), it was due to the precipitated sand which formed an isolating partition. And what else happened?

The heavy compounds of arsenic, antimony and sulfur with mercury, silver, gold, lead, copper, bismuth, nickel and tin gathered more and more in the vapor shell of the glass flux in various forms of earths and ores. Antimony, bismuth and lead not only give an easily-melting alloy for printer's metal, but their oxides unite readily with silica, clay and other metal oxides to form glass. Even the excellent refractory porcelain crucibles are melted into glass by the bismuth oxide in the air furnace.

Bismuth is found in all rocks partly as pure metal, partly alloyed with silver, partly united with oxygen or sulfur. This explains the valuable service it renders in the form of oxide to many glass fluxes of primeval rocks for the longer conservation of its liquid condition. On the other hand, arsenic and sulfur — since they escape from bismuth ores when heated — must also be presumed to exist in the sun shell as gases.

The Elements in the Great Plan. All these properties of the elements reveal a wonderful plan by the great universal Architect and every metallurgist cannot help being aware of it. Arsenic metal could not be dispensed with to absorb the hydrogen actively; the rare metals were needed to complete the rapid chemical process by intensifying the electrical tension; and the bismuth served as a means of loosening the glass flux making the granite easier to be crumbled.

Glass flux is a very transitory thing. Even our simple window glass becomes easily dull in moist cellars, because it covers itself with a fine black coat of slate, since the water vapor dissolves the potash of the glass, leaving silica, limestone and clay as well as lead oxide in powder form. Therefore, red litmus turns blue by the moisture adhering to the window glass in the cellar and in spite of cleaning and polishing the decomposition always begins anew. When the ability of glass substance to decompose is demonstrated even in a simple mixture of potash, limestone, lead oxide, clay and silica, how much more energetic is the decomposition when magnesia, manganese, iron oxide and *bismuth oxide* reduce the resistance of the glass mass. This explains why the gabbro rock in Scandinavia, which was originally a glass flux containing potash, soda, calcium, magnesia, ferrous oxide, manganese oxide, clay and silica, has deglazed completely. No one will ever again be able to recognize glass in this rock as it no longer exists. But it is precisely for this reason that we enjoy what it produces.

Gabbro rock is an excellent supplier of wood although it does not possess any carbon dioxide but has resources on the earth's surface. All steamships which cross the ocean pay their tribute to the northern gabbro. The carbon dioxide produced by the combustion of coal falls into the sea; every noon the sun at the equator warms the water and the carbon dioxide rises with the water vapor; due to the transformation of large quantities of water into gaseous condition the air becomes laden with electricity, heavy thunderstorms cumulate, the atmosphere splits itself and the rain clouds, together with the carbon dioxide vapor, disappear to north and south.

The carbon dioxide rain water is greedily absorbed by the earthy and alkali parts of the gabbro rock (calcium, magnesia, potash, soda and ferrous oxide) and the equivalent is a wonderful growth in Sweden and Norway, which at the height of summer continues day and night. The trees and shrubs produce much wood and the mountain raspberries, bilberries and cranberries contain more sugar and have more flavor than anywhere else. All this is because of the granite and gneiss which slowly but surely, by their alkali content, attract 0.004% carbon dioxide with which the atmosphere is constantly supplied.

The presence of such granite rock is directly related to the bismuth metal because the latter is found below the granite in depth. That is because at the time when the granite was still a liquid substance, the easily-melting bismuth ore sank to the bottom, as it still does today when it corrodes a refractory crucible.

Amber. Directly related to bismuth metal is amber which originated in Sweden and Norway. When the melted bismuth ores still heated the Scandinavian gneiss as if with hothouse heat, this area of the earth offered quite special advantages for vegetation compared with today. Types of trees thrived there which can no longer grow wild in Norway because the driving heat of the subsoil has ceased. At that time one could find cypress trees and thuja there, as well as a great variety of the more common coniferous trees and beeches, oaks, chestnuts, willow, alder, acacia and poplar.

Many years ago it was believed that resin was produced by certain amber trees but chemical analysis of the amber resin proves that it is a common pinewood resin which today also contains amber acid as does the amber itself. If our pinewood resin does not entirely resemble the amber, the reason is to be found in a condition which is connected with the atmosphere of that time.

In addition to amber acid ($C_4 H_6 O_6$) which resulted from cellulose-splitting, the amber also contains a polymerized turpentine oil-aldehyde of the chemical formula $C_{10} H_{16} O$. On account of the presence of this turpentine aldehyde we must assume that insufficient oxygen was admitted which can be explained by an intensive forest fire. At that time, as still today, moss and heather, bilberries and cranberries grew out of the fallen pine needles, traces of which can be found in amber. Forest snails created by the luxuriant forest material, spiders, beetles and butterflies existed in the shade of the pine woods and their remains are also found in amber.

Once, at the time of the midnight sun, in the month of July, when insect life had reached its culminating point, the mountains split apart and the eastern part of Scandinavia sank and gave way. Between the crevices the molten bismuth appeared; all trees at the edge of the crevices fell down and burned to coal in the hot molten metal. A blazing flame then roared up and set fire on both sides to the very dense forest remains of Scandinavia. The resin dripped out of the crackling branches and trunks of the forest trees and covered the forest ground, burying at the same time the snails and insects which sought shelter against the consuming heat in the heather and ferns.

The First Rain. While both sides of the granite mountains were glowing from heat and the atmosphere was nearly boiling, an intense electric tension gathered over the blazing barks as the equivalent of the vast temperature difference. Ultimately, relieving lightning struck in the thin air-filled space; a cloudburst extinguished the flames and the hot air which was saturated with water vapor appeared from all sides of the earth pouring an endless stream of rain over the carbonized tree trunks on the mountainsides and over the molten bismuth.

The huge granite boulders which were dragged to the Swedish coast by the downpouring mountain rivers (not by glaciers), as well as the estimated 5 million tons amber resin together with Swedish heather, spiders, beetles, moss, charred branches, and, from the loose forest soil, iron silicate, slate, sandstone and clay, were moved like a wedge by the onward-pushing mountain water down to the Danish, Prussian and Finnish shores. All this teaches us of what incalculable force this cloudburst must have been. And we can only guess — no one knows — what quantities of amber drifted into the sea on the other side towards the Arctic Ocean and to the Atlantic Ocean, partly to Holland and France, sank into the depths of the sea partly cemented with clay and sand.

GRAVITY, THE VITAL THREAD OF ARIADNE

Now let us continue to search for the *equivalents* which result from the addition of hydrogen to the sun material that is contained in our earth. In this connection it may be useful to point out that the following description of chemical events is not by any means a fantastic picture; all events must in fact have taken place as described. In our reasoning we have followed the chemical laws, in contrast to Charles Darwin who in his time could not avail himself of the important sources of help furnished by chemistry.

Physics and chemistry are inseparable, as are arithmetic and geometry. It is from physics that we have learned about *gravity* as an equivalent of power. The following reflections form a tour through the dark labyrinth of the geological past by constant seeking for the Ariadne thread which gravity places in our hands.

1) It is the same whether I push the balance beam down with my hand or whether I place a solid object which has considerable weight, on the empty scales. If 10 pounds of iron are required to balance the object, the power of my arm which is able to obtain the same effect is of equal value as the 10 pounds of iron. But the power of my arm which balances the scale is only the equivalent of 10 pounds of iron for a *certain time*. After a certain length of time my muscles become exhausted whereas the iron continues to possess the power to keep the scales in equilibrium.

This proves that every force which is used in the form of pressure, push or blow, to prevent an object from exerting its gravity and to keep it floating, or keep it in motion, must gradually relax its gravity if *constantly new* motion or pressure power is not added. The game of billiards gives us a practical example. Here, the ball, the friction on the billiard cloth and the attraction of the earth are unchangeable factors. According to the law of inertia the ball should always maintain a steady motion whether a weak or a strong push has been given. But this does not happen.

The equivalence of forces reveals positively that an object which is thrust into space can continue to fly only as long as

the exerted thrust power has created sufficient motion. From then on it will stand still in space wherever it may be, unless a new force affects it. Motion is a force equivalent, therefore a small measure of pushing power cannot result in infinite motion.

A proof of this are the meteor showers occurring around August 10th and November 12th where they stopped moving in space after being hurled away from the earth, because they are much too small either to rotate or to gravitate. If a celestial body is to rotate or gravitate it must have a certain dimension and a small specific gravity; then the sun rays can warm it unevenly and roll it around. It starts gravitating because it is attracted by the sun mass but is repulsed by the sun heat. These two forces, together with the circular motion for which a round form is required, produce a diagonally circular motion around the sun. This we call gravitation.

In brief: The gravity of a substance is an actual force which can equal another force or another substance, and gravity as a force gets the same results as other partial forces, e. g., magnetism, electricity, heat and chemism, having either a *uniting* or attracting effect within a close range. In order to attract or repel, or to transmit magnetism, electricity, motion, heat or chemism, from one body to another a chain of three links or at least two bodies and one force is needed to effect the transfer for which a certain proximity is required, called the effective zone.

On the other hand, when the distance between two bodies is an equivalent, then attraction or repulsion, heat, motion, chemical union or gravity no longer is in effect unless a massive quantity of electricity or other force, such as the elastic space ether or the sun heat, bridges the greater distance.

2) When I load the scales of a balance with two pails of equal weight and fill one of them with 7.8 liters of water, it needs but one single liter of iron to establish the balance, since metallic iron is 7.8 times heavier than water. Of hematite ironstone, which is only five times as heavy as water, it would require correspondingly more. In 1.56 liters hematite iron $Fe_4\ O_3$ there is one liter iron and about 3740 liters oxygen gas chemically condensed. If I wish to extract from 1.56 liters hematite iron its 1 liter metallic iron, I have to heat it and let about 7500 liters hydrogen gas act upon it. Then I get in total 1 liter iron and 7500 liters water gas, i. e., about 4.35 liters water. Thus the 1.56 liters hematite iron by its chemical union with hydrogen gas were converted into $5^1/_3$ liters iron and water. Its volume more than trebled.

This explains that because arsenic metal as well as other catalytic substances effected a chemical union of space hydrogen with the oxidized metals, the volume of the thrown-off sun material increased substantially because *water* was formed.

Our sea water gives us a yardstick for the amount of hydrogen gas which has been provided by space and therefore for an enormous amount of *tension material* which can be brought into circulation by suitable processes. In other words: By possessing sea water our earth is extremely rich in lively power because the *actively moving element hydrogen* is contained in the water in concentrated form and is indispensable for all organic life.

3) Since gravity is a force, then a heavier weight in an equal space possesses a greater power. This is confirmed by observation of chemo-analytical practice.

a) In a solution of numerous metals, the heaviest metals, gold, silver, mercury, lead, copper, etc., precipitate first through the presence of hydrogen sulfide SHH.

b) Hydrogen chloride and iron sulfide change their components whereby the heavier negative chlorine (71) unites with the heavier positive iron ($2 \times 28 = 56$), and the lighter negative sulfur (32) unites with the lighter positive hydrogen ($2x1 = 2$), by forming iron chloride and hydrogen sulfide.

c) Again, hydrogen chloride and iron oxide change their elements into iron chloride and water. This behavior is of general validity among hydrogen acids and oxides because the lightest *positive* substance hydrogen unites with the lightest *negative* substance oxygen contained in the oxides.

d) The heavy hydrogen acids: bromides, iodides and chlorides of hydrogen,

have almost completely displaced the lighter hydrogen fluoride from the sea (calcium fluoride), whereas sodium chloride (common salt) remained soluble.

e) Copper, nickel and cobalt (being heavier than iron) precipitate sooner than iron in common solution if a little ammonium carbonate is added. Therefore, we find much copper, nickel and cobalt sediment in iron ore (red strata of the Mesozoic era).

So much for the examples. The law of gravity dominates the chemical processes so universally that the lighter substances do not get their turn before the heavier are saturated. Exception to this law are those elements distinguished by highly active and positive electricity, namely potassium and sodium.

In harmony with this victorious behavior of gravity, first the heavy negative metal arsenic (150) saturated itself with the hydrogen gas in space with the participation of sulfur (32) and antimony (122) since they are related. The next step was that the heavy arsenic exchanged its light hydrogen for the heavy metals silver, bismuth, iron, cobalt, nickel and copper, whose oxygen combined with the lighter hydrogen, thus creating *water*. Antimony and a certain amount of sulfur, as nearest relatives of arsenic also participated.

Since we can now assume that these three substances, except sulfur, are for the major part saturated, we can continue to let the electronegative elements, in the gravity sequence of their atoms, saturate with hydrogen, namely iodine, bromine, chlorine, fluorine, phosphorus, sulfur, nitrogen and carbon.

The result is that the relationship of sulfur to chlorine, phosphorus and cyanogen CN is as close as to arsenic and antimony. On the other hand, arsenic has a similar relationship to phosphorus and nitrogen. We must remember that arsenic and sulfur take part in all chemical processes of phosphorus and nitrogen, till the very last amount of arsenic is saturated. This is due to the tie of relationship.

MERCURY AND VENUS ARE BORN

So far we have followed the fate of the torn-off sun substance up to the point where its vapor shell dragged along the heavy arsenic, antimony and bismuth ores. And since it was explained that gravity is a power which opposes the hurling force, we must now recognize that the heavy dragging metal tail of the sun was left behind and that only the lighter material continued to drive forward.

This metal tail was left behind at the place in space where today the planet Mercury orbits around the sun in an elliptical path. Evidently, this heavy planet was formed under such circumstances. That the heavy metals, gold, silver, mercury, tin, united with arsenic and sulfur, cling to Mercury is explained by the fact that the astronomers calculated its specific gravity to be more than $1^1/_2$ times as heavy as the earth (1.6 : 1).

Yet a still larger part of the arsenic vapor, including the created sea water, sea sand and shale mud, continued to follow the forward-hurling sun remainder as a faithful companion. Freed from the attraction of the heavy substances left behind, its tail became shorter and followed, elastically resilient, the attraction of the compact glass flux mass. Thereby the waters flooded down onto the hot glass and burst it into numberless splinters like a hot glass lamp cylinder cracks when water is thrown on it. By this splintering the points of attack increased exceedingly and the absorption of hydrogen caused the formation of water to take place with livelier activity.

Again, after about 7 million miles of travel a heavy mass of sand, shale, water, salts, sulfur ores and splintered glass flux followed the remaining glass flux core and the equivalent of the increased weight by the absorption of hydrogen was that a new separation of the loose material took place, whereby nearly half of it was left behind, thus forming the new planet *Venus*.

The diameter of Venus is but a twentieth part smaller than that of our earth; therefore it rotates very little faster around its axis than the earth, i. e., 23

hours, 21 minutes. Its specific gravity compared to the earth is about 9 : 10, and its volume about 4 :5. Since the light analysis of Venus shows almost total similarity of its material to that of the sun, it follows that it must also resemble our earth, because this too possesses the components of the sun. But it seems that the earth is superior in material to Venus to the extent that the porphyry rock mass remained intact.

MERCURY AND VENUS, EXAMPLE FOR THE EARTH

The comet (earth) mass, relieved of its heavy sulfur metals, rocks, salts, steam, sand, water vapor and shale, sped farther into space with considerably less speed after it had probably traveled ten weeks and had covered 14½ million miles in this time. It could then not last much longer before all its material started to rotate like a ball and to roll like a slowed down cannon ball, after Mercury and Venus set the example for this. For the moment its speed was still too stormy.

A two-mile high (therefore a volume of about 2 million cubic miles) vapor shell of sulfur-arsenic-chlorine-fluorine-phosphorus-cyanide, of the size of our earth ball traveling six weeks long, day and night always in new regions in the universe through unlimited amounts of cold concentrated hydrogen gas and saturating itself! — With such an illimitable addition of hydrogen to the negative elements it was inevitable that a steady increase in weight should take place as well as a continuous retardation of speed, reduction of heat and increase in separation of crystallizing masses.

The arsenic and sulfur ores and the separated parts of the metals, gold, platinum, iridium, silver and copper, hardened *first*. After the arsenic and antimony were saturated by the hydrogen, chlorine (71) and fluorine (38) came next. In order to prevent misunderstanding however, we should mention here that it was not arsenic *alone* which absorbed hydrogen but all the electronegative elements participated in this process, one supporting the other; but the lighter elements could not hold what they acquired until the heavy substances as a whole were saturated. Thanks to this cooperation in the electric chain the absorption process advanced so rapidly.

One should not think of these processes as being strictly limited (one product originating in one place and another product in another place), but must constantly remember that with the enormous extension of substance it was a *mixed* vapor that was effective which was all the more aggressive and corrosive. Without this supposition there can be no clear understanding, either of chlorine or the fluorine compounds.

Since chlorine and fluorine by absorbing hydrogen transformed into hydrogen chloride and fluoride, they were able to corrode the glass mass with doubled strength. Each of these alone would only have been able to effect this very superfically. However, because the hydrogen chloride was assisted by the hydrogen fluoride, it was then possible for them both to be saturated with rock substance whereby the heavy hydrogen chloride in particular retained the most electropositive elements, potassium, sodium, copper, iron and aluminium, and the calcium was left to the hydrogen fluoride.

Through such a corroding effect of hydrogen chloride and hydrogen fluoride the *nagelfluh* rock, amongst others, was created, which we understand to be rounded silica pebbles which were tightly cemented together with calcium silicate, silica, clay and calcium fluoride, as if done with hydraulic cement. And this corresponds to the actual process that took place.

We can get a rough idea of the tremendous extent of the corrosion process which 2 million cubic miles of the vapor of hydrogen fluoride effected on the broken-up primeval rock when we consider the deposits of calcium fluoride in crystallized or crumbled earthy form that are spread over the whole earth. If we also consider the deposits of aluminium-sodium fluoride up to 75 feet high in southern Greenland and, finally, when we consider the other visible remaining

deposits, we can begin to comprehend what vast amounts were sunk into the depths of the sea — then we can imagine how immense the quantities of hydrogen fluoride must have been whose corroding gas attacked and corroded all joints and seams of the rocks, all fissures and crevices, washed all crumbles and splinters and formed the nagelfluh rock which later came to light after the loss of the sea water and the rising of the earth's crust.

Meerschaum. The sodium-aluminium fluoride of Greenland as well as the fluorspar indicate that parts of the chalk, clay and soda out of the species of feldspar were dissolved by the hydrogen fluoride. This left magnesium silicate in the form of *meerschaum*. Magnesia comes so close to the three substances, chalk, clay and soda, in their atomic weight that the corresponding kind of rock called mica is one of the most widely-distributed minerals. Since we cannot find on our earth such great quantities of meerschaum which would correspond proportionately to our calcium fluoride mass, we must ask ourselves: Where has the meerschaum gone? (See section: The Birth of the Moon.)

Besides meerschaum, the mica sand and the round sea pebbles are also products of the corrosive hydrogen fluoride in accordance with the experience that projecting corners and edges show the greatest radiation of heat and electricity, so that the attack from dissolving forces must take place there with increased energy. From innumerable porphyry and granite fragments only rounded pieces were left. The remainder of their substance partly disappeared into the sea water as fluorides of sodium-aluminium-magnesium and silicon of which the latter formed gelatinous silicic acid $Si\ O_2$ and quartz sand — and partly the created calcium fluoride settled in the form of muddy earth.

After the loss of the Venus substance a strong reduction in the motion speed of the earth material followed. The effect of the hurling force broke gradually, the sun exercized its power of attraction and the reduced centrifugal power transformed the original arrow-like shooting material into a spherical ball taking up a rotating motion. Thus does a cannon ball fly nearly in a straight line at the beginning with very little rotation, and only when the attraction power of the earth takes effect, and the power of thrust is reduced and the ball touches the ground, does the ball start to *roll* the same as a wooden ball does when it is thrown on the water.

WHY OUR GLOBE IS HOLLOW

After the corroding action of the hydrofluoric acid $H_2\ F_2$ upon the glass ruins of granite and porphyry rocks was completed, and a new huge quantity of water had been added, the following picture arose:

1) At the equator the sea level was about 300 feet higher than at present. On both hemispheres only the highest granite and porphyry mountains protruded from the water, therefore no Jura, no Alps, no Switzerland, no Carpathian Mountains; in other words: no sulfates, phosphates and carbonates of calcium nor any chalk and coal.

2) *Deep under the water* in the West lay, the pampas of the La Plata, the Amazon Valley, the Llanos of the Orinoco, the Mississippi delta, the Hudson Bay lands; and in the East, southern England, the center of France, Holland, Denmark, northern Germany, southern Sweden, nearly the whole of Russia, the valleys of the Ganges and the Euphrates, the Libyan dessert and Morocco.

3) The water was covered for the most part with *meerschaum* (magnesium silicate).

4) The atmosphere contained neither oxygen nor nitrogen. Instead, the two-mile-high heavy vapor of phosphorus-sulfur-cyanogen lay over the sea, which swallowed the sunlight and absorbed the heat rays of the sun.

5) The mountain ranges at their highest peaks and near the equator still showed the virgin glass character of the porphyry rocks and were covered with

precious metals. Lower down and toward the poles the heavy vapor of hydrofluoric acid corroded the sharp rock edges and left behind rounded granite boulders. In the Western Hemisphere a heavy strip of porphyry glass flux was deposited toward the south due to the revolving of the earth. At the equator it cracked and its thin fluid content of heavy iron ran out. In this way the Andes gradually formed the sloping mountain lands of Brazil. The northern part (the Rocky Mountains) supplied the Allegheny Mountains. In the middle, the glass flux flowed to the west up to the Sandwich Islands (Hawaii). In South America the remaining shell of the primeval glass lump is so thin that the waters of the Pacific Ocean, by the hydraulic pressure, penetrate the earth crust. Due to the centrifugal power of the earth's rotation the waters are driven more than 18,000 feet high into the communicating crevices of the steep Andes where, out of more than 25 openings, water, mud, sand and rocks periodically are brought to light, sometimes by eruption.

6) The sea water was icy cold, because all chlorine salts were dissolved therein due to the right of the stronger as chlorine has the atomic weight of 71, whereas sulfur has but 32. This is the reason why the presence of hydrogen chloride prevents hydrogen sulfide from precipitating iron, zinc or manganese, and why no sulfides of potash, soda, magnesia and calcium can exist in a solution of hydrogen chloride. Rather, from trisodium sulfide the sulfur was separated by the hydrochloric acid. Under these circumstances the sulfur then formed the cementing substance for the formation of the earth crust and also coated the inner wall of the earth shell from where the volcanoes brought it to light.

The following were dissolved in the sea water: the *chlorine* compounds of potash, soda, calcium, magnesia, strontium, barium, zinc, iron, manganese, nickel, copper, silver, gold and aluminium, and about the same kinds of fluorine compounds as well. Due to this cold mixture the rocks touched by the sea water were cooled off and the brittle glass mass crumbled, but high up the rocks were still hot.

7) The *rotation* of the earth, according to the laws of centrifugal power, caused the *light* hydrogen to find its place within the earth, whereas everything that was *heavier* — therefore also the 12,000-times-heavier water — curved like a crust around it.

The Earth Crust. Rocks, sand ores, slate, sulfur and water closed together to form a shell around the space hydrogen. At its most compact areas the shell could not have been more than two miles thick because from deeper regions we never have been able to calculate earthquake radiations. In most places the earth crust is considerably thinner and at certain places it is not yet closed, having remained permeable.

Even today, the earth crust under the *Mediterranean* is still so porous that the water permanently seeps into the inner part of the earth and the level of the Mediterranean is a meter lower than that of the Atlantic Ocean. However incessantly the water of the Black Sea roars through the Dardanelles into the Mediterratean, it sinks equally incessantly into the inner part of the earth shell. By the force of rotation it is pressed against the walls, is heated by the friction from the teeth of the tuff and pumice stone, crushes these and finally appears again, with or without its mud, in boiling condition.

As long as the sun shines and the earth ball turns, and as long as the water of the Atlantic Ocean at Gibraltar and the water of the Black Sea through the Dardanelles continue to press into the Mediterranean, and as long as the bottom of the Mediterranean keeps its crevices (which it will *always* do), there will be no shortage of hot springs in Baden-Baden, Wiesbaden, Ems, Vichy, Neuheim, Aachen, Teplitz, Carlsbad and Iceland. But neither will the changes of ground formation cease on the Greek and Italian shores. And a certain amount of the force equivalence is immediately visible in the volcanoes Etna and Vesuvius and on Santorin where the earthquakes never cease. How could the fish be hurled out of the Vesuvius crater if they had not first entered through the earth

walls with the sea water?

At this point I wish to remove a fundamental error which exists regarding the magnetic force of the global center. Imagine a house built of cards! Its gravity point is in the hollow center and it does not occur to anyone to suspect the presence of firm substance there. Now why do so in the earth, since the condition is identical? It is the earth's crust that gives gravity its effectiveness, but never the global center, nor the enclosed hydrogen gas, as sure as the physical point of gravity lies in the center (the same as in the house of cards).

When the hydraulic pressure of the sea breaks through the shell of the earth and the rotation presses the water that has seeped through outwards again, then, considering a cubic content of the earth of approcimately 2500 million miles, certain force equivalents will not surprise us.

The waves of the sea, because they rub against one another during a storm, become warmer than when the air is calm. Water can be brought to boiling point when drilling or polishing work is done therein, and stones cause sparks to spit from the hoofs of a horse. What heat, then will result when rocks move against one another and the rock masses push the rocks forward?

The sea water, heated by friction, transferred its heat to the rocks which in this condition formed chemical compounds with the hydrogen of the earth. The ferrous sulfide was transformed into metal iron by the hydrogen while hydrogen sulfide escaped through the crater gaps. Such metals, which were taken for meteoric iron, were found in a mass of basalt on the island of Disko. Basalt, however, indicates a glass flux of silica, clay, ferrous oxide, calcium and magnesia, potash and soda. And basalt glass flows out of the earth when the heated earth hydrogen withdraws the oxygen of the iron oxide of the porphyry whereby oxyhydrogen gas is created.

Such oxyhydrogen gas ignites because it is lit by a spark — probably from the rolling rocks — like the stone's spark from a horse's hoof. In addition, the enormous stocks of magnetic ironstone together with the electric currents inside the earth also serve as a further equivalent of the powerful earth rotation in order to explain the electric discharges. Such electric currents are proven because they affect the magnetic needles that take a vertical position to the earth rotation, i. e., from south to north.

What is Inside? Everything points to a hollow earth center, that is to say, an earth filled with hydrogen gas because the eruptions from the volcanoes often contain hydrogen sulfide and hydrogen chloride as compounds of hydrogen with ferrous sulfide and ferrous chloride in addition to sulfur. They also contain carbon dioxide and boric acid in places where the silicic glass, which is being melted by burning oxyhydrogen gas, affects the earth carbonates and alkali borates. In many cases, for instance, in the Vesuvius, it is only water vapor that rises from the volcano opening.

Basalt, or molten lava, contains much iron because the iron content of a glass mass brings about, as in bismuth, its easy fluidity. There are basalts that contain up to 30% iron ore. Other rocks containing no iron are not subject to the melting processes which the continuous turning of the earth ball produces as an equivalent. Therefore, we must not conclude a constantly fiery-liquid condition in the earth center on account of the meltability of a single mineral.

In the Hawaiian Islands a glowing lava lake fills the crater of Kilauea. If we also observe the Andes and the Rocky Mountains we find red porphyry (iron-containing rock), whereas the rocks in California are rich in copper, which is more difficult to melt, and chalk. That is where the vineyards flourish. Also, as a contrast to lead, chalk together with much silica evidently is the basis of good Bohemian glass, making it difficult to melt and providing it with great resistance.

The Andes chain in Peru and Bolivia even today form a picture of a stiffened wavy lake, like a tough, fluid glass mass which was not able to sink down again after it was once raised up by a powerful suction force. On the other hand, a considerable piece of porphyry glass flux is missing between the Andes and the Rocky

Mountains (Panama). From these conditions the following hypotheses seem justified:

1) The lava of Kilauea (Hawaii) crater contains about 50 to 60% silica, 20% ferrous oxide, clay and manganous oxide and about 20% potash and soda and some calcium.

2) These are the slag masses which remained fluid longest and were easiest to melt which at that time had flowed that far when at Panama the giant glass flux of the Rocky Mountains and the Andes split.

3) The entire Hawaiian archipelago consists of lava but only the most eastern island was in communication with the inner earth due to favourable conditions, and the material of the crater lake stayed fluid due to a funnel-like cavity which contained electrolytically-formed oxyhydrogen gas locally isolated in burning condition.

4) The sudden rise and fall of the crater content is not explainable by increased lava but is due to a yielding of the subsoil which was lifted by the tension of the earth hydrogen gas; the Lake of Geneva (Switzerland) supplies an analogy. Its level rises several feet within a quarter of an hour when the sun suddenly breaks through the clouds and with its rays warms the air over the lake. About a quarter of an hour later the lake level drops again. The narrow entrance and outlet of Lake Geneva plus the physical law of inflow and outflow of liquids need no further explanation than the yielding ability of the subsoil. Again, the sheer cliffs along the Doubs River (Swiss Jura) indicate an earth split, also the pressed-up nagelfluh masses near Geneva which lead to the Bois de la Batie at the Arve Bridge, appear as two congruously split-up halves. All this proves the weak strength which is characteristic of the earth crust in western Switzerland. In a similar way we must also consider the subsoil of the Hawaiian Islands.

5) The entire soil of the Hawaiian Islands consists of lava that originally was fluid and can become fluid again under suitable circumstances. Therefore volcanoes are not solid products but hollow cone-shaped structures. Their own substance melts again and is pressed through side holes; as soon as the shell has become thin enough the tops collapse as illustrated by Etna and Vesuvius. This is the best proof that it is not the earth center but the earth *crust* which supplies the lava material.

The rotation of our earth due to the hot sun rays represents a hitherto completely ignored, gigantic source of power. Out of the depths of the earth, in the form of innumerable acidulous mineral springs, it pressed upward considerable quantities of carbon dioxide. Near Bonn, almost inexhaustible amounts of carbon dioxide appeared because the silicic acid expels the carbon dioxide from the earth carbonates. In this way our vegetation is continuously made more fertile and through forest growth our climate is noticeably improved, so that the Rhine wine, which at the time of the Romans was too sour for them, now is considered among the better wines. Likewise, the earth rotation presses oil and natural gas upward. In such a manner the carbon dioxide and oil are gradually brought to light which originally sank to the bottom of the sea together with chalk, sand, carbon and shale.

In times past some geologists thought our earth was filled with molten gold and iron, reasoning that the rocks pressed with such tremendous power upon the earth center that this pressure would cause the inside of the earth to become red hot. But they did not consider the following conditions:

1) An iron ball is not hotter inside than outside.

2) An egg shell does not crush the yolk, nor does it heat it.

3) A dome neither crushes nor heats the assembled community, neither does the shaft crush the miners.

4) If the earth were a red hot mass inside, its revolution, which amounts to 5400 miles in 24 hours at the equator or nearly four miles a minute, would have the effect of splitting apart such a red hot mass like a fireworks spinning wheel.

Since we know which chemicals have remained behind as a result of gravity after the hydrofluoric acid was neutralized by calcium, soda, silica and clay, it is easy to see what further happened when we take testimony from the witnesses of that time that are still with us today: kieselguhr, coal, oil, chalk, guano and Chile saltpeter.

Like the sun, so also does our earth have a center and an atmosphere. We must regard the land and the sea together with the enclosed hydrogen as the center of the earth; the earth's atmosphere today consists of nitrogen and oxygen but at the time of the earth's formation the sea was covered with a brown sulfur-phosphorus-cyanide vapor. These are the lightest-weighing negative elements with respective atom weights of 32, 31 and 26.

The sea itself contained compounds of fluorine 38, chlorine 71, bromine 160 and iodine 254, dissolved with lighter and heavier elements, from magnesia 12 to gold 197. Also, the sea was so rich in dissolved silica and so close to the saturation point of silica (of which water can dissolve only one-thousandth part) that any further addition of salt would have caused the precipitation of silicic acid. We must note that the precipitation in the form of quartz and opal had already occured when the salts increased and fluoride silicon was subjected to decomposition into silicic acid and fluosilicic acid.

And a new supply of salt (ammonium oxalate) from the atmosphere was about to take place because the water vapor of the atmosphere had to unite with its cyanide vapor CN into *ammonium oxalate*

C(OHH, OHH)N = COOH / NHHH
C(OHH, OHH)N = COOH / NHHH

Furthermore, the wealth of silica in the sea was so great that in places where only a little water covered the earth crust the sea and the atmosphere united so successfully that from the silica and *ammonium* oxalate the massive bamboo woods of primeval times were created. Under the protection of these woods the crocodiles, turtles and ichthyosaurus reptiles of the first period of creation developed which, with their protoplasm (first formation material), depended upon a certain amount of silica.

The original sea contained such an abundance of silica that in those places on the earth which formed wide deserts, immediately below the water surface where the evaporation was very strong (as in the area of the equator), fairly large crystals of silica dropped to the bottom. This is proven by the sands of the Sahara and of Arabia and the rainless territories of Persia and northern India. At other places the precipitation of silica into microscopic flakes probably occured only as a result of the reduced water temperature at night. The product of these flakes, united with iron oxide and clay, are found under the name of kieselguhr in the Luneburger Heath in Germany for example, also in Sweden and in the flat lands of North America.

In line with my intention not to treat natural science as a dry stick but as a green, blooming and fruit-bearing branch a few considerations will here be of value on the importance of silica, in the middle of the sandy subject, like an oasis in the desert.

Silica. In many districts in Sweden the farmers mix kieselguhr with their flour for baking bread, and there is no doubt that the ripe old age attained by many country people in the northern parts of Europe can be attributed to the cementing power of silica in organic substance and blood protein. It is immaterial whether silica is taken directly in the easily assimilable form of kieselguhr or indirectly in the form of certain plants, for example, coarse oatmeal, millet, etc.

People who frequent spas are freed from paralyzing conditions by the silica contained in the waters although they are not aware of the source of their cure. Gout suffers, by receiving treatment at Carlsbad, exactly imitate the snow hen which eats silica, clay, manganese, iron, magnesia, calcium phosphate, soda and potash in the form of Scandinavian granite, for in 16 liters of Carlsbad mineral water they drink 1 gram silica, $^1/_{250}$ gram clay phosphate, $^1/_{25}$ gram iron carbonate, as well as $^1/_{75}$ gram manganese, 10 grams

calcium, magnesia, lithium, strontium, silicon fluoride and 80 grams sulfates, chlorides and carbonates of soda. Silica and silica fluoride form an essential part of the Carlsbad water, also its sodium sulfate (Glauber's salt) possesses a considerable cementing effect on protein. It must be mentioned that the efficacy of silica and fluorine is different than that which can be expected from the simple Glauber's salt, which now and then is sold at high price under the name of Carlsbad salt.

The hundreds of mineral springs in both hemispheres also contain such physiological earths in various mixtures and dilution. And the ash of cereal grains contain silica, potash, soda, magnesia, limestone, iron, phosphoric acid and sulfuric acid. Since Graham bread and whole-grain bread in its bran (grain shell) possesses the mineral components that make us disease-resistant, the vegetarians indeed have an effective trump card.

Without silica dissolved in water the crocodiles could not have attained their scaled armor, and without fluorine their terrible teeth. Now that the water no longer contains fluorine, the crocodiles must eat land animals that have absorbed fluorine with their plant food.

That silica cements protein is based on its character as a *mineral acid* which stands in *opposition* to calcium, as well as to ammonia, magnesia, potash and soda, and this is the reason why it has a uniting effect. Thus silica has a disinfecting power, that is, it purifies drinking water from pigments, odorous substances and decaying protein which are united and insolubly precipitated by the silica. Yet silica is *sand* regardless of kind, because no stones exist without silica and its disinfecting power also remains in compounds with earths, e. g., as sodium silicate (water glass) or as magnesia silicate (mica sand). This is why the mountain water of Norway, the Alps and other high mountains are of crystal-clear purity. The city of Berlin, also, with its sandy subsoil, had such pure water up to the 19th century and was a healthy city.

Protein Defined. Clay (aluminium silicate-phosphate) as a component of the earth is even more energetic than silica, chemically binding miasmas and decaying matter. In clay, protein substances absolutely cannot exist in solution, neither putrifying nor healthy protein substances. Iron oxide and iron chloride behave in a way similar to aluminium oxide or clay. Thanks to this property the silica, clay and iron oxide in the sea water could chemically unite the most varying kinds of protein in the form of animal substances, at a time when no mother animals yet existed. What we must find out is where such protein substance originated and what we must really understand protein to be.

Here we face new knowledge. The chemist Justus von Liebig already in 1875 had the happy thought that the basis of protein substance was a product of *sugar* substance and *ammonium*, an epoch-marking idea that unfortunately was not followed up. Today we must extend Liebig's meaning of protein to the general definition of *protoplasm,* and can now say:

Protoplasm is a chemical union of sugar or oil substance with more or less of the following substances: ammonia, potash, soda, calcium, magnesia, manganese, iron, lithium, silica, phosphoric acid, sulfuric acid, hydrochloric acid, carbon dioxide and hydrogen fluoride. All these substances and others (gold, silver, copper, nickel, cobalt, arsenic) were present in the primeval sea, after sugar and oil substance plus ammonium carbonate originated from phosphorus-sulfur-cyanogen gas and sea water.

Primeval Organic Creation. We have now reached the point where *organic creation* begins when we can credibly prove the presence of sugar and oil, phosphoric acid, sulfuric acid, carbon dioxide, hydrogen sulfide and ammonia, in the sea water. To be sure, first its gold, silver, lead, copper, nickel, cobalt and arsenic had to be precipitated, but thereafter with the remaining earths all imaginable kinds of living protein would originate. The first appearing kinds of protein were incapable of living, because the remaining mercury, silver, gold and lead, due to their gravity hindered the mobility of the protein and sunk them to the bottom of the sea. These metals today still are poiso-

nous. For example in a printing shop, the lead often coagulates the blood and nerve protein of the printers. (To bring this up-to-date, I must mention the poisonous motor car exhaust. ED.)

Further, it is necessary to understand that the clay dissolved in the sea water as aluminium chloride, in the beginning prevented the coming to life of the proteins. This is because clay has the characteristic property of producing *hard shells* similar to calcium and silica, which are also contained in the periphery, where, on the contrary, potash is characteristic of the shell contents.

Insensitive hard shells! This is in accordance with the fact that organic substances of any kind are precipitated from their solution in water by aluminum hydrate and become lifeless and insoluble. The effect of alum (potash aluminum sulfate) as a gargle means that the catarrhal secretion becomes chemically united and instantly loses its *infectious* power, i. e., of producing a similar decay or fermentation.

The First Living Creatures. Consequently, only from the time when the aluminum salts in the sea for the most part precipitated with organic substances as bituminous shale, the diluted solutions of it created shells around organic bodies, limiting the mobility of the creatures but not entirely abolishing it (crocodile, ichthyosaur, tortoise).

After the clay had been diminished by this process, newly-admitted ammoniacal protein was able to unite with the remaining earths and to bring forth other creatures of a different nature which would accompany those that already existed.

In accordance with such a sequence, corals, snails and crayfish first consumed the calcium salts of the sea; then cartilaginous fishes appeared and subsequently marsh and sea birds that were able to obtain silica and clay for their feathers on the chalky rocks where the sea lye had evaporated. Thereafter, when the clay and silica had practically disappeared from the sea, the turn came for such creatures which had to manage without feathers and clay-silica shells. In the general period of creation they found sufficient silicon fluoride, however, which in combination with large quantities of phosphorus and sulfur cyanide could be made either into tusks or into horny shields (rhinoceros, elephant). Also out of sulfur cyanide the kangaroos, cave bears, lions and hyenas produced their claws and springy sinews.

Even though the atomic weights of sulfur (32) and phosphorus (31) are close together, sulfur is still a little heavier, consequently it was used *first,* yet in combination with phosphorus in order to produce animal protoplasm from albumin substance. Therefrom resulted the horny shields of the rhinoceros, the sulfur-containing hairs of the mammoth, the thick fur and sinewy claws of the bear — all these formed parts of the first mamals.

The marsupials already had less choice of substance. When their physical substance grouped together, sulfur cyanide and phosphorus cyanide were probably of equal proportions. The constantly growing rodent teeth indicated a rivalry between ammonium phosphate and ammonium sulfate. The "cement" which forms the basic substance of the tusks and molars of elephants, the tusks of wild boars and the incisors of rodents, consists of sulfur-containing cartilage. The same applies to the horn substance that protects the most sensitive parts of the brain nerve substance, e. g., the nose nerve of the Indian rhinoceros. The solidification of such cement, its seeming transformation into stone, is achieved by *calcium phosphate.* The phosphorus content forms the material for mental light; hence the remarkable intelligence of the marsupials and of all rodents whose ever-growing incisors lead us to presume the presence of phosphate.

Eventually, however, the time arrived when the sulfur cyanide was so much used up that the phosphorus cyanide became preponderant. There was no longer *sufficient* sulfur to produce strong sinews or even to produce a covering of hair. Neither was there any longer sufficient calcium in dissolved form available to form bones and a firm skull with resisting power. On the other hand there still existed an abundance of ammonia phosphate and oils.

Man — Last but Not Least! Then it happens that in all parts of the world more or less large balls of phosphorus-containing fat were formed which floated on the water and were washed ashore by the waves. Only a thin skin of gelatine cartilage, into which only a few bits of calcium phosphate had crystallized, covered the phosphate-containing fat in the shape of a large brain out of which a few threads and a kind of stalk had sprung, to which was attached a hardly noticeable start of trunk and limbs. Because the *apes* had used the sulfur cyanide to produce such shamelessly long arms, a beautiful curly tail and masses of hair and sinews that they were able to embrace the trunk of the tree, against which they had butted their heads the moment they woke up from their dream, and to climb up and swing on the branches, insufficient substances had remained to form these supporting features. In this respect we have nothing in common with the apes.

Physically helpless and frail, unarmed, hairless, the human being appeared on the scene, independently produced by the salty tide but not from apes and, notwithstanding its helplessness, superior to its fellow creatures in two respects, namely, by its richer substance for spiritual *light* and by its command of sounds. These pitifully lamenting sounds of the helpless, crying human being for whom there was hardly anything to eat, were irresistible to the animals. No wonder that the female bears, dogs and wolves adopted the strange foster child which, suckled with bear's milk, then grew up as strong as a bear.

Nature Furnishes the Essentials. As far as the required materials of sugar, ammonia, oil, phosphoric acid and carbon dioxide are concerned, these were created by the three remaining elements in the atmosphere: sulfur (32) phosphorus (31) and cyanogen (26) in union with water. By the union of these substances with the elements which were dissolved in the sea, magnesium (12), calcium (20), sodium (23), potassium (39), manganese (27½), iron (28), silicon (28), fluorine (38), chlorine (71), in various combinations, innumerable animal and plant germs originated, partly *simultaneously*, partly *rapidly one after the other.*

Germs! We need nothing else. The fact that plants and animals develop in a great variety of shapes by growing out of these can be observed daily.

We can see that every type of regular layer, which we call organic growth, even now never takes place without the co-operation of water. Since originally almost the entire earth crust was covered by water, and considering the abundance of material that was combined in the sea which created new combinations with every wave through its movement, another place of birth on the first day of the creation of the animal world can hardly be taken into consideration. However, on the mountains, fertilized by products of cyanogen and by water vapor, trees, herbs and grass could originate.

Thus Moses' history of the creation of the heavens and the earth is correct. Let us examine it.

First day. The earth began to turn and day and nigth succeeded each other. Moses: "God divided the light from the darkness ... And the evening and the morning were the first day".

Second day. As a result of the rotation the firm rocky shell of the earth with sand and mud separated from the sea water. Moses: "And God divided the waters ... and it was so ... And the evening and the morning were the second day".

Third day. On the mountains and in the valleys, ferns, sago palms, bamboo forests germinated in the twilight of the vapor-laden air. Moses: "And God said, Let the earth bring forth grass, and herb-yielding seed, and the tree-yielding fruit, and it was so ... And the evening and the morning were the third day".

Fourth day. The sun victoriously penetrated through the mist. Moses: "And God said, Let there be lights in the firmament of the heaven ... And the evening and the morning were the fourth day".

Fifth day. Creation of the whole animal world except for the mammals and parasites took place. Moses: "And God said, Let the waters bring forth abundantly the moving creatures that hath life, and fowl that may fly above the earth

in the open firmament of heaven. And God created great whales and every living creature that moveth ... and every winged fowl ... And the evening and the morning were the fifth day".

Sixth day. The land mammals, human beings and insects appeared on the scene. Moses: "And God said, Let the earth bring forth the living creature after his kind, cattle and creeping thing ... And God said, Let us make man in our image, after our likeness: and let them have dominion over the fish of the sea, and over the fowl of the air ... and over all the earth, and over every creeping thing that creepeth upon the earth. So God created man in his own image, in the image of God created he him; male and female created he them ... And the evening and the morning were the sixth day".

Seventh day. The earth was festively decorated, the table set and all prepared for pleasure. Moses: (Exodus 12 : 16) "And in the seventh day there shall be an holy convocation to you, no manner of work shall be done in them, save that which every man must eat, that only may be done of you".

There are some scientists today who claim we could quite easily exist without God although everyone can observe in nature how the good Lord continues to work unceasingly. Really more chemical light is essential. From the unfalsified open book of Nature, from *chemistry* as the master of the natural sciences we must learn how to nourish ourselves and how to keep man, animal and plant healthy while the chemically-blind false theories retard the wheel of progress like a brake shoe.

THE CREATION OF COAL, CHALK, GYPSUM, CALCIUM PHOSPHATE, GUANO AND AMMONIUM CARBONATE

The general points of view have now been set forth. Let us investigate in particular what happened when mainly only cyanogen gas, phosphorus and sulfur remained in the atmosphere. Then, among the products resulting from the union of these original substances with sea water and earth, we find, in particular, coal, chalk, gypsum, calcium phosphate and guano. After more careful study we cannot ignore the fact that they are related to our body substance as very close kin, a kind of petrified brothers and sisters which in mutual embrace became alive and transformed into plants, when their common grave was moistened by the rain and exposed to the sun.

The popular argument that no one is able to know how the creation developed because no one was present is based on chemical short-sightedness. The trump card of the natural investigator is the fact that he has, so to speak, a bird's eye view of the entire earth; thanks to the spiritual light which he has received from God, he can obtain a living picture of the past notwithstanding the few remaining traces left behind by the original elements. If we observe the continuing *effects* of the unchangeable laws we are able to conclude the *causes* which lie in the past. Here follows an example out of many!

The Carbonates. Calcium carbonate cannot be produced by *heating* since carbon dioxide escapes when heated. It can only be produced in the cold and it is formed in large quantities if we mix a solution of calcium chloride with a solution of sodium carbonate, potassium carbonate or ammonium carbonate; then chalk or calcium carbonate precipitates. In the same way, magnesia carbonate, iron carbonate and copper carbonate precipitate from hydrochloric solutions. All these carbonate products lose their carbon dioxide by heating.

In slate-like layers or strata whole mountains can be found consisting of calcium carbonate, magnesium carbonate, ferrous carbonate and carbonate of copper oxide as "colored sandstone" and on top, copper carbonate (malachite) in chemical union with water of the same composition as carbonate of copper oxyhydrate, which always is precipitated by carbonates of alkalies from copper solutions. It is therefore an undeniable chemical *truth* that all the aforesaid carbonate compounds in the sea must have

been precipitated from a common solution of calcium, iron, magnesia and copper either by potassium carbonate or sodium carbonate or ammonium carbonate. Potassium carbonate and sodium carbonate could not possibly be present because we know that silica, melted together with potash or soda, *expels* the carbon dioxide, whereby potash glass and soda glass are formed, a condition as it exists in the sun material; neither could *carbon dioxide* be present because it would be transformed into carbon oxide and water by the hydrogen, while the water would be transformed into potash and hydrogen by the potassium metal; thus we may leave the original presence of potash and soda out of consideration. Consequently, it must have been the *ammonium* carbonate which caused this carbonate precipitation as the required material was available for this process, namely, on the one hand, sea water and, on the other, carbon and nitrogen in the chemical union of *cyanogen CN*. Under such conditions ammonium carbonate and ammonium formate infallibly will be created every time.

$C_2 N_2$, $H_3 O_4$ = COO, NHHH; COOHH, NHHH.

When apart from the calcium carbonate we further find mountains of calcium sulfate and calcium phosphate in slate-like layers, alternating with calcium carbonate, then we know that cyanogen was accompanied by prodigious quantities of *sulfur* and *phosphorus* which at the time represented our primeval atmosphere. There is no other satisfactory way to explain chemically the colossal precipitations, whereas under the assumption of a primeval atmosphere consisting of phosphorus-sulfur-cyanogen, everything is fully explained.

Which calcium salt could have been dissolved in the sea in such large quantities? There were but two chemical possibilities, namely, calcium nitrite or calcium chloride because all other mineral acids (sulfuric acid, phosphoric acid and carbon dioxide) precipitate with calcium. Nitric acid $N_2 O_5$ cannot be considered as it did not exist in the sun material or in the earth's atmosphere because there was no oxygen present and nitric acid gas consists of a chemical union of 2 nitrogen with 5 oxygen. It could only have been *hydrochloric* acid besides some hydrogen bromide and hydrogen iodide which did not originally exist as such, but which were dissolved by the space hydrogen from their vaporous compounds with arsenic, antimony, bismuth, lead, copper, silver, gold, etc. In this process the metals were partly separated in solid form and partly they were chemically united with arsenic, antimony and sulfur, and especially silver, mercury, lead and bismuth. We can ascertain how great the copper compounds must have been by noting that near Lake Superior in Canada a block of metallic copper of about 500 tons was found.

The question still to be answered is how so much chalk could be formed in concentrated solution of calcium chloride and metals? In the first place, there is no shortage of chalk, either in the clay-holding rocks or in the rocks which do not contain clay. Chalk, so to speak, forms the world cement; it forms the primeval mortar since the Creator bestowed it with specific *binding* power. It is the unequaled cement used in masonry. There is no other substance that equals it in quality of firmness. Let us explore exactly where this calcium chloride originated by examining the various types of mountains.

There is a type of rock, hornblende, which essentially consists of silica, magnesium and calcium. Embedded in other types of rock, its crystalline, shale-like appearance indicates that it must have crystallized out of primeval rock glass flux. This rock was particularly suited, together with hydrogen fluoride and hydrochloric acid, to extract calcium.

Contrary to hornblende we find gneiss, rich in clay, which forms large extensions of our earth's crust. Gneiss also crystallized out of the primeval rock of the porphyry and granite type and it is closely connected with these rocks in many places on the earth. The characteristic of gneiss is that free silica (quartz) and feldspar with mica are found together in granular form. Gneiss must be regarded as the main constituent of primeval rock masses and in some places it reaches a thickness of more than two miles, which is

as thick as the earth crust is estimated. Consequently, the gneiss rocks poor in calcium give us a yardstick for the amount of calcium which became dissolved in the sea water from the other kinds of rock rich in calcium, after hydrogen fluoride together with hydrogen chloride acted upon the latter.

Similar to the Dead Sea, we must assume a highly concentrated salt solution in the primeval sea in which, besides the calcium earth, all the other remaining constituents of the primeval-rock glass flux were dissolved in union with chlorine, in particular barium, strontium, iron, zinc, manganese, cobalt, nickel, copper, silver and gold. Therefore in the beginning out of this concentrated salt solution, thick layers of calcium carbonate-phosphate-sulfate settled to the bottom of the sea. Only after the solution became more diluted did the settlements become lighter and more tender. Thereby the coarse, granulated Jura chalk is distinguished from fine chalk.

According to the law of gravity the heaviest substances precipitated first, therefore, first the *ammonium sulfate* precipitated the barium sulfate, strontium sulfate (coelestin) and potassium sulfate, and on top the calcium sulfate (gypsum) settled. The *ammonium phosphate* precipitated thereafter, besides calcium phosphate, together with phosphates of iron, clay and magnesia. And eventually the *carbonate* compounds settled.

In this manner we now know where the calcium earth came from, which was originally united with silica in the primeval glass fluxes. Out of these chemical compounds it became dissolved by the hydrofluoric acid and hydrochloric acid, a gigantic work for which any calculation in human or horsepower as a yardstick would be too small. By such work, performed in advance, *we have become immeasurably rich.* The calcium originally dissolved in the sea precipitated by the ammonium salts in such vast quantities that entire mountains arose therefrom. These calcium mountains are a treasure house because plants and animal bodies grow by means of calcium earth. We must constantly keep this in mind if we wish to understand the building plan of the earth and simultaneously be informed about where the *main sources of aid and nourishment* can be found and what their value is.

We shall now investigate what processes took place when the calcium chloride solution came into contact with ammoniacal substances arising from phosphorus-sulfur-cyanide. Since phosphorus, sulfur and carbon (but not nitrogen) are highly combustible substances, they would, in our present atmosphere, burn into phosphoric acids, sulfurous acids, sulfuric acids and carbon dioxide. But at that time there was no such atmosphere because the named substances *themselves* formed the atmosphere.

But there was *water,* and, just as potassium metal burns with the oxygen of the water, thus liberating hydrogen, it can be forseen that phosphorus and sulfur, as well as carbon, will also act in the same manner since they contain nitrogen to which they can add the hydrogen of the water by forming *ammonia.* Therefore, when phosphorus, sulfur, carbon and nitrogen are absorbed by the water, *ammonium* phosphate, sulfate and *carbonate* result as well as partly phosphine, hydrogen sulfide, *hydrocarbon* and nitric acid.

In these products we already recognize the substances of plant sugar (grape sugar), and of animal sugar (gelatine sugar); because plant sugar consists of 4 hydrocarbon CHH, 2 carbon dioxide and 2 water; whereas animal sugar consists of 2 hydrocarbon CHH, 2 carbon dioxide and 2 ammonia.

Coal. These substances did not at first serve to bring forth plants and animal bodies, but to create coal. The chemical and physical reasons why coal and oil did not originate from forest trees or plants, and chalk not from animals, are as follows:

1) In general, coal consists of manifold layers of structureless coal along with calcium carbonate-sulfate-phosphate, mica sand, shale mud, calcium silicate and sulfur metals. Never is a trace of wood found.

2) All coal supplies gasoline and aniline oil. The very pure English Boghead coal which leaves very little ashes behind

even supplies paraffin 4(C_6H_{12}) in abundant quantities. Which type of wood supplies any of these products?

3) At distillation all coal, in addition to aniline oil, supplies ammonium. No kind of wood does this. Wood produces acetic acid.

4) Coal contains much sulfur pyrite. This is a sediment from hydrogen sulfide and ammonia with a solution of iron, silver and gold chlorides. Such could not be created by plant material but only by a solution of chlorine metals, thus by the sea water.

5) Much ferrous carbonate siderite is also found in coal. Such a compound could only originate in the absence of oxygen for in every other case iron oxide originates. How could the forest trees, whose leaves separate oxygen, have existed in an atmosphere free of oxygen? At the time of coal precipitation there was no oxygen in the atmosphere but only phosphorus-sulfur-cyanogen. This, combined with hydrogen, produced the crude oil which, united with ammonia carbonate, was needed to protect the iron chloride of the sea against oxidation and to precipitate it as ferrous carbonate oxide.

6) It is regrettable that most coal contains arsenic so that the arsine which fills the streets of the English factory towns and the fumes from the open fireplaces in London cause much consumption. No type of wood contains arsenic. The phosphorus-sulfur-cyanogen naturally was not chemically pure but was mixed with the generally and abundantly available arsenic. After the saturation of chlorine and fluorine with hydrogen had been completed, the absorption of the space hydrogen by the phosphorus-arsenic-sulfur-cyanogen lasted until these vapors had completely sunk into the sea.

With such absorption of hydrogen, naturally only pure hydrogen compounds were produced. Nitrogen also took part in the chemical union with hydrogen although by itself it cannot chemically combine with hydrogen. However, it does, as in this case, when it forms a connecting chain with carbon, phosphorus and sulfur. Therefore the following were produced: ammonia NHHH, phosphine PHHH, arsine AsHHH, hydrogen sulfide SHH, and hydrocarbon CHH. The latter followed its natural tendency to cluster and thus produced hexylene 6 (CHH) and paraffin 24 (CHH).

The created ammonia settled the dissolved aluminium chloride in the sea, in the form of aluminium dehydrate. This, however, drew all organic compounds with it into the depths of the sea, which not only explains the bituminous slate from which oil can be refined, but also the regular connection of oil sources with clay strata. The oil is liberated together with water in the proportion to which the attached aluminium dehydrate unites with silica and separates its water. At Baku on the Caspian Sea, oil springs from shale of a clay-like character. All the American oil springs also from slate mud, sand and chalk and confirms its origin from arsenic - sulfur - phosphorus - cyanogen by large amounts of arsine, hydrogen sulfide and hydrogen phosphide.

7) The precipitation of aluminium hydrate with phosphorus - sulfur - hydrocarbon ammonium started the moment this gas plunged into the sea. Therefore oil is often located *below* the coal and chalk strata both of which only take second place amongst the mutation products of cyanogen. Sometimes, however, the oil also flows directly out of the coal, for instance, in the coal mine "The Dingle" in Shropshire; or out of chalk as on Java and in other places. This proves that the absorption of phosphorus - sulfur - cyanogen occurred so rapidly in succession that here and there, together with oil and coal, chalk, gypsum and calcium phosphate also precipitated and settled to the bottom of the sea according to their respective specific gravities. This applies to copper, nickel, cobalt, and manganese carbonates, as well as to the products of hydrogen sulfide and arsine, i. e., sulfur iron, sulfur gold, sulfur silver, sulfur lead and arsenical pyrite. These are the various strata which, although not representing tumbled forests, did not require millions of years.

8) The heavy clay shale with its carbon-holding products was, of course, the first to settle on the bottom of the sea, and over that settled the light chalk which was produced out of ammonium carbo-

nate and calcium chloride. This explains the appearance of layers of shale, pebble, oil, coal, chalk and Jura calcium. These are meticulously held in separate layers by the geologists and to their great annoyance often puzzled them by a discord; although they are a unit formation inseparably belonging together.

9) In proportion to its carbon, coal contains so very little potash that this fact alone makes it impossible to assume that it originated from forest trees which need potash in large quantities.

10) One of the distillation products of coal is also virgin cyanogen CN as a direct proof of its origin. No type of wood supplies cyanogen when it is distilled.

11) The plant imprints found in coal only prove that immediately after the purging of the sea from liberated cyanogen, the formation of plant started. The formation process of brown coal will be explained later.

12) Since *chalk* always contains small quantities of oil and ammonia and often also gypsum and calcium phosphate, it is not surprising that plant and animal life could germinate therein. Innumerable quantities of small mussels are found in chalk. But now to say that these mussels have produced the chalk although not one-millionth part of chalk contains mussels, and to maintain that the animals are so microscopically small that their shape can no longer be recognized, manifests a most naive disregard of logic. For one must ask a) From what have these small animals actually manufactured the chalk substance? b) On what have they existed since in chalk we find 95% calcium carbonate? They must have eaten a lot of calcium salt! But where did it come from? c) Have they also taken arsenic which is present in chalk as well and which is poisonous to all microscopic animals? d) Iron also kills all microscopic animals. Since, however, iron is a fairly general constituent of chalk, my final question is: Of what exceptional constitution was the physical substance of these small animals that they were able to resist the shriveling effect of iron since the nerve substance of even large animals cannot stand up to iron? The ammonia phosphate of the nerve substance, combined with iron salts, results in lifeless iron phosphate. Therefore, our iron-containing blood on one hand, and our phosphorus nerve oil on the other, are dependent on rigidly separated vessels. The external blue-green color of the yolk of hard-boiled eggs is based on iron phosphate which by heating originates from the sodium phosphate of the yolk and the iron-containing egg white which touches the yolk.

In real mussels which are usually distinguished by their considerable size, it is evident that sufficient lively protein remained behind after the phosphate and carbonate of ammonia oil — swimming on top of or in the calcium chlorine solution of the sea water — had created a protective wall of carbonates and phosphates of calcium, iron and ammonia-magnesium. In microscopic creatures, however, of which there are in fact many, there can be no chalk and iron for physiological-chemical reasons; they always appear only in substances which lack calcium and iron. From this important law several practical applications can be deducted, for instance, controling insect pests. It must be said clearly that as surely small animals can emerges from organic plant substance, e. g., when hot water is poured on hay containing phosphates, so it is equally impossible that microscopic beings can be created from predominantly chalk-holding substance. In reality the clay- and iron-holding chalk represent the precipitation from ammonium carbonate and a solution of aluminium chloride, calcium and iron chlorides.

The simplest explanation for the creation of *coal* is, that a considerable part of the phosphorus-sulfur-cyanogen vapor of the earth atmosphere united with the sea water in such a way that all the oxygen of the sea became absorbed by the phosphorus and all hydrogen was absorbed by the sulfur and nitrogen.

$C_6\ N_3\ P_6\ S_6 + H_{30}\ O_{15} =$
$N_6\ H_{18},\ P_6\ O_{15};\ S_6\ H_{12};\ C_6$

In the above case ammonium phosphate, hydrogen sulfide and *carbon* resulted. A similar separation of carbon from its compounds when no oxygen was available for oxidation is a common occurrence. Gas flames and petrol lamps deposit lamp black when insufficient oxygen is present

to burn the coal completely. And stove pipes are blocked with black soot when hydrocarbons, wood or coal, are insufficiently supplied with oxygen.

Such unoxidized coal stuck to the oil $C_6 H_{12}$ which was formed at the same time because instead of the carbon, *sulfur* now separated by itself.

$C_6 N_6 S_6 P_6 + H_{30} O_{15} =$
$C_6 H_{12}; N_6 H_{18}; P_6 O_{15}; S_6$

We know with what eagerness carbon clings to oil or rather how they cling together. For instance, we see that plant and animal carbon hold fusel oil firmly, and it is this property of the carbons which liberates the fusel oil from alcohol. And the large amounts of sulfur which actually exist give us a real foundation that such processes took place. This explains the formation of coal and chalk; now let us analyze the *kieselguhr* deposits.

Since Ehrenberg made the statement that the *kieselguhr* of the Luneburger Heath and slate from Bohemia consisted of armors of microscopic animals, it was accepted as such. But it was an error. There is no sign of animal remains in kieselguhr, it is nothing but silica, iron oxide and clay, that is, exactly those substances which kill animal material. Kieselguhr treated with caustic soda produces water glass which contains silica soda, clay soda and iron oxide soda, but nothing else. Where is the animal substance for which phosphorus and ammonia are indispensable? Each individual kieselguhr grain is exactly the same size as the other, it has no gradual growth; however, it was formed by a general crystallization as quick as lightning because it settled in the sea water as silica gel.

As previously explained, silica and clay have the property of uniting with organic material (ammoniacal oil substance). This explains the numerous petrifications that contain mainly silica. Other petrifications took place by a chemical change of place of animal albumin with the sulfate and chloride earth compounds of clay, chalk, strontium and iron, which were dissolved in the sea water.

The primeval rocks (sun glass flux) today show different structure and chemical composition because the silicates of chalk, of clay, potash, soda, iron, magnesia, etc. separated from one another, and formed various compounds as long as the glass flux stayed fluid.

On top of the various primeval rocks we find the following layers of sediment in the sea water:

1) At the very bottom the *coal* with its earthy admixtures consisting mainly of silicate and carbonate compounds of chalk, magnesia, iron, clay and pyrite (ferrous sulfate).

2) Over the coal lies the "red stratum" consisting of iron, cobalt, nickel and copper, chalk and clay without petrifications.

3) Thereupon follows a layer about 3-feet thick of copper slate containing carbonates of chalk and magnesia together with clay and carbonate of copper mixed with coal and oil.

4) Over the copper stratum is a tough solid layer of clay mixed with calcium carbonate and gypsum 15 to 20 feet thick.

5) Then follows a compact layer of magnesia-chalk carbonate including a loose ash-like magnesia-chalk carbonate.

6) And on top we find gypsum and rock salt deposits which resulted from solutions of chlorides of calcium, magnesium and soda with ammonium sulfate.

Up to this point extended what is termed "Dyas" of the Mesozoic era, containing the twofold layers of red strata containing iron, cobalt, nickel and copper, chalk and clay. It is followed by "Trias" of the Triassic era which divided into colored sandstone, mussel chalk and keuper formation.

The colored sandstone owes its name to the various colors of precipitations due to the presence or absence of iron oxide and ferrous oxide. It consists of silica, chalk and clay and some mica and partly carbonate compounds of chalk and magnesia, barium, strontium, iron and copper. In such copper-holding rocks no animal life could thrive. The copper first had to be settled so that mussels could appear in the sea water, and thus we find mussel chalk settled over sandstone. The mussel chalk is covered by the keuper formation, i. e., mica, sand, clay, calcium-magnesium carbonate, also gypsum and sulfur pyrite and some coal. The sequence of precipitation which took place during the keuper formation was, at the very bottom, mussel

chalk, then marl mixed with coal, then marl and gypsum, and on top, marl and quartz.

Thus it is clear that the marl (calcium magnesium clay silicate) never and nowhere settled in the sea water by itself, it always contained mixtures of the remaining minerals in the sea. Coal settled intermittently so that calcium carbonate contains coal parts and compounds of hydrocarbon, proven by the so-called stench chalk, the bituminous marl shale and the asphalt rock.

Guano. Guano was formed in the same way as gypsum and chalk. The Peruvian and Australian guano originated from the effect of phosphorus-sulfur-cyanogen on the sea water. Except for clay and sand, the Peruvian guano essentially is a compound of ammonia with phosphoric acid, uric acid, oxalic acid and magnesia, as well as of sulfates and phosphates of potash, calcium and iron. It is completely beyond understanding why such a product should originate from sea fowl (as is widely believed), whose excrements it supposedly represents, since this explanation is not compatible with physiological-chemical facts.

A characteristic phenomenon of the Peruvian guano are the white salt lumps of potassium sulfate and ammonia which wrap around the other constituents in the form of round shells. But *potassium sulfate never appears in the excrements of fowl.* The guano substance of the Navassa Islands (near Haiti) and Baker Island (in the Pacific) consists almost entirely of compounds of phosphoric acid with clay, iron, chalk, magnesia and ammonia. The guano of Mejillones (island off the coast of Chili) is even purer and contains almost only calcium phosphate and magnesia. The guano of the Chincha Islands (Peru) indeed contains cyanogen, but it does not originate from sea fowl — the sea fowl and seals originate from the guano.

It is exactly the Chincha Islands as well as some parts of Australia, both of which were protected from the sun by high surrounding mountains, which can be considered as original places of creation of snakes, fishes, seals and pelicans, and also marsupials and Australian aborigines. The absence of oxygen in the atmosphere did not hinder the creation of larger animal bodies, on the contrary, this lack of oxygen actually favored it and was the essential condition.

We must understand clearly that the coming-to-life and growth of bodies take place in two phases. The movements of a child only become noticeable in the middle stage of development, while consciousness comes only when the child is born.

When we find bodies of seals, pelicans and snakes in guano, this does not prove that these animals have had a conscious life. They first lived a kind of fetus life, a sleeping existence like a child's in its mother's womb. Such a phase also had to be lived by the whales, mammoths, hippopotamuses, kangaroos, ostriches and Australian aborigines. The understanding of the creative processes out of the guano substance is facilitated by the consideration of the following figures of the individual mutation products of cyanogen, clearly showing the direct relationship of the Peruvian guano to the flesh constituents — urate of ammonia, guanine, xanthine, sarkin, creatine, oxalic acid, allantoin and the snail pigment murexid which originated from the same substance as guano, namely, from phosphorus - sulfur - cyanogen and sea water:

(See Table of Figures, page 3)

Oil-forming hydrocarbon CHH which originated therefrom, supplied in combination with simultaneously-appearing formate, carbonate, sulfate and phosphate of ammonia, all possible kinds of connective tissue as well as sinewy, horny and bony substance. Regarding the guano of the Chincha Islands, this forms the petrified chronicle of the entire history of primeval creation, which will now be related.

Today's atmosphere consists of one part oxygen and four parts nitrogen, whereas in early times it was much heavier due to the phosphorus - sulfur - cyanogen vapors. The hight of the atmosphere — about two miles — was the same, then and now. This average height is understood to have been applicable at 45° latitude, whereas at the equator it would probably have been double that height, but from 60° latitude to the poles it can only be estimated as slight, taking into consideration the centrifugal force at the equator.

At the equator not only the heaviest vapor had to rotate but, as a consequence, also the *heaviest salt solution* of the sea. With this in mind not only is the rich accumulation of guano out of the chemical change products of cyanogen south of 15° latitude explained, but also the sources of soda *saltpeter* in Bolivia and, diametrically opposite, in India.

The effect of phosphorus-sulfur-cyanogen upon a solution of the chlorides of potash, calcium, magnesia, aluminium and iron resulted in a certain amount of soluble compounds (including urea). Therefore, aluminium hydrate combined with sand gradually precipitated insolubly in proportion to the transformation into ammonium carbonate of the created urea, by chemical condensation with water. This ammonium carbonate then precipitated the clay salts. In this appearance of ammonium carbonate out of urea lies the meaning of *putrefaction or decay*. Such decay could only take place after the precipitation of coal with oil and ammoniacal slate mud as well as sand had been completed and the sea nearly freed of aluminium salts and silica, because these substances have a decay-preventing effect.

The ebb and flow of the tide caused the decaying urea which precipitated the clay earths to be washed up against the steep Andes rocks. Here urate and oxalate of ammonia, together with the other guano substances including ammonium chloride (sal ammoniac) resulting from the ammonia and the aluminium chloride, crystallized out of their solution. This took place mainly in Pisco Bay (Peru) where it is constantly cool and shady. The precipitation sank to the bottom of the sea, whereas a certain amount was caught by the Chincha rocks which, at that time, were located approximately 100 feet below sea level. The guano accumulated there contains only about 5% sand and clay mud, but no coal and chalk, which leads us to conclude that the precipitation of these two substances had ceased when the decaying process of the urea commenced.

Such putrefaction of *urea* cannot be measured with the same yardstick as other processes of decay. In normal decaying processes the form *disintegrates* whereas the appearance of ammonium carbonate has a *form-giving* effect, because this salt is an incomparable symmetrical material that directs growth. It not only permits radial combinations to all sides but also grows pillar-like upwards, as we can see from the hartshorn salt which grows in vertical or axial directions.

This form-creating property of ammonium carbonate is not contradictory to death due to pyemia (blood poisoning) in which ammonium carbonate also appears and is followed by the death of the individual. Such death takes place because the ammonium carbonate regains its original form and immediately a *new* form begins, so of course the present form must perish. The old house is demolished by separating it into its individual parts. Similar to the bricks of a dismantled wall the flesh bases carnine, sarkin, creatine, etc., which were formerly part of the animal body, reappear as microscopic crystals of straight-rod shape or needle form. This change of form occurs with lightning speed according to the law of crystallization. Calcium carbonate possesses a similar form-giving property.

For animal bodies ammonium carbonate, together with oil-forming hydrocarbons, is absolutely necessary, in order to provide free mobility for the limbs. And the decaying process whereby ammonium carbonate appears must occur before new formation can take place. This teaches us about the ill-reeking *indole* $C_8 H_4$, N H_3, consisting of ammonium carbonate as well as hydrocarbon (gela-

tine sugar) and dilactid, i. e., 2 carbon dioxide and 2 ethylene, for whose chemical union 6 water were separated.

Indole is a split product of our blood albumin. It is produced by the pancreas and is led through a firm, tough, sinewy channel called the duodenum where it serves as new form-giving substance for the chyme. Indole develops this form-giving by pairing itself, or polarizing or polymerizing. In the proportion that the pairing proceeds, its offensive odor, which accompanies the chyme a long way through the intestines, diminishes. This tells us that the odor also means a vibration or a modification of power that can appear or disappear, all according to whether the transition occurs out of one state, or into another. By itself, unpaired, and inhaled in its volatile state or when it directly reaches the blood, indole has a definitely poisonous, that is, form-destroying property which reveals the reason for the damaging influence of cloaca fumes on health.

Indole C_8 H_4, N H_3 has an interesting relationship to poison hemlock, coiine C_8 H_{10}, N H_3, as well as to cat urine which smells of drying, dehydrating poison hemlock. Coiine contains 8 hydrogen more than indole. Since it can be made from pure alcohol C_2 H_4, HHO and acetone 2 (C_3 H_4, HHO) when ammonium gas is added, it proves that the ammonia NH_3 is of triangular shape, thereby possessing a binding power in three directions. When alcohol C_2 H_4, HHO is united with one of the three sides of ammonia and on the two other sides of ammonia the atomically heavier acetone C_3 H_4, HHO is chemically united, then coniine results, whereby at each side union a molecule of water is separated. C_2 H_4, C_3 H_4, C_3 H_4 NH_3 = C_8 H_{15} N. But in the poison hemlock bush, coniine is not produced from alcohol and acetone but from gelatine sugar, sugar and water by separating hydrogen peroxide. This is an incidental example of achieving a certain aim in two different ways.

Ammonia has a uniting power in three directions. Since the three sides of ammonia are occupied by 1 carbon dioxide CO_2 and 2 hydrocarbon CHH, the flesh substance sarcosin or methylglycocol NH_3, COO, CHH, CHH is created. Because soda, potash, calcium or magnesia combines with the carbon dioxide side of the sarcosin, it is understandable how mineral substances, particularly earths, can chemically join ammonia. This is attributable to the oil-forming hydrocarbon CHH combined in soluble form, analogous to the tartaric barium sulfate. Now, since calcium, magnesia, potash and soda chemically unite with sugar substance by producing plants, it becomes clear how these substances in dissolved condition can also circulate in *animal* blood in order, so to speak, to be moved like ready-cut bricks into the gaps into which they fit or where they are lacking. Where they do not fit they are made to fit by the hydrocarbons shifting around.

Thanks to the continually-moving hydrocarbons attached to ammonia, such regrouping is strongly influenced by a salt solution containing the compounds of hydrochloric, sulfuric and phosphoric acids with soda, potash, calcium and magnesia. Without these *salts* an integral growth of larger animal bodies is quite impossible. The salts represent stored-up *electricity* inasmuch as metallic oxides are held chained together by non-metallic acids in each mineral salt. The actual nature of electricity is based on such *opposition;* no impulse is thinkable without opposition.

All salts possess a driving force. The presence of the electricity-conducting sodium chloride (common salt) particularly involves a greater solubility of the calcium sulfates, phosphates and fluorides which in themselves have only a slight solubility, but enormously gain in solubility by mutual support especially by common salt.

The named salts are present in our blood stream in the approximate proportion of 1 : 100, of more than half being sodium chloride. If sodium chloride and calcium chloride were not dissolved in the sea water no larger animal could be created because only by the dissolving and electricity-conducting power of common salt could a spinal column be formed whose bones, through the heavy weight of the calcium phosphate, have a lasting efficacy on the transitory power resulting

from the oxidation of oil substances.

How could jaws and teeth have been constructed out of soft tallow and cartilaginous gelatine material? And arm bones which guide the iron plow without calcium phosphate? The substance of our bones contains approximately the following percentages of constituent parts:

Calcium phosphate	51.04
Calcium carbonate	11.30
Calcium fluoride	2.00
Magnesia phosphate	1.16
Common salt and sodium carbonate	1.20
Soluble gelatine	32.17
Insoluble sinew substance	1.13
	100.00

With this survey we clearly recognize our origin from porphyry or from the glass flux of the sun together with its sulfur-phosphorus-carbon-hydrogen vapor. Through calcium and magnesia, potash and soda we are a part of the *rocks;* through sodium chloride we are offsprings of the *sea-tide.*

Calcium phosphate-carbonate and fluoride, soda and magnesia in the bones, the potash in the muscle flesh and the carbon nitrogen in the cartilage indicate that the sun is our primeval mother. The hydrogen, however, which together with carbon forms the oily substance, originates from the heavenly regions. So we are children of the *sun* as well as of the *heavens.* The calcium phosphate of the bones and the carbon nitrogen of the gelatine substance we have in common with *guano.*

THE PRIMEVAL EMBRYO SUBSTANCE

In the phosphorus-sulfur-cyanogen gas is the original embryo substance which represents all animal life according to the design of the Master Architect that phosphorus serves the sensitive nervous system while sulfur, on the contrary, was destined to serve the phosphorus substance as a protecting wall by the creation of an insensitive sinew and fiber substance. Carbon and nitrogen are common to both spheres although nitrogen, as an elastic substance, was selected to support the function of the sulfur. In this way the preponderant accumulation in the outer zone can effectively absorb and withstand all severe blows which, if they would directly hit the subtle phosphorus substance a splitting would result as equivalent.

In order to restrict such splitting to the smallest possible degree, many protective devices were designed such as: a flexible skin firmly stretched over a bone frame enclosing numerous protein-containing and salty fluids; a hard nerve skin (dura mater); a soft nerve skin (pia mater); a cobweb skin (arachnoidea); then also a cartilage layer and finally the cartilage layer filled with earth and stones (calcium carbonate and rock salt), feldspar, potassium chloride and calcium phosphate. What a range of protecting enclosures! In the same way they are found for the protection of the child in the mother's womb by the amnion, the amniotic fluid, chorion, the placenta and the matrix.

At the time of primeval creation these protections were also available, in particular the soft wave of the salt- and protein-containing sea which served as amniotic fluid so that the mammal germs, lying as if in a cradle, could develop by endosmosis and exosmosis diffusion through semi-permeable membranes, thereby obtaining everything necessary for their growth. Yet they all lay banished in a magic sleep until a tempestuous storm shook the rocky fortress of the Andes and burst all egg shells and a universal electric shower kissed all creatures of the sea awake as in the fairy tale of the Sleeping Beauty.

A chemically legitimate opposite proportion between phosphorus and sulfur is already recognizable in the hen's egg. There the largest amount of phosphorus is found in the yolk (nerve fat) yet all sulfur is exclusively present in the enclosing albumen, and this proportion is equally and invariably valid in all larger animals. Phosphorus-sulfur-cyanogen was the changeable, never-resting Proteus who could assume all possible shapes by

diving intermittently into the sea bringing forth a variety of crayfish, snails, whales, snakes, turtles, birds and fish.

In order to wander through the apparent labyrinth of primeval creation we possess two reliable guides, the law of the equivalence of power and that of gravity. Only one thing is still lacking to build up animal bodies and this is the main thing, namely the *form*.

THE FORM

We now approach the *climax* of our research. What does the form signify at this point? The form is the keystone in the arch of the equivalence of power. The form *itself* is an equivalent of power. All remaining power equivalents are subjected to the form, because without form they cannot appear nor manifest their power. Form and shape are everything. Therefore form is the master of the equivalents of power.

The form in which a thing appears to us is the addition product or the *sum* of all powers which were bestowed upon the object; it is the resultant of the *parallelogram* of the forces which created it. All minerals show the geometric figure of the parallelogram in single or plural groups clearly recognizable in their base position.

The form means the individual, but the form can change and transform. And then the individual too metamorphoses. The form can change its position and direction; this requires a changed equivalent of power and vice versa: A change of *power* changes the form. If the direction of a power is longitudinal or axial, other forms will result than if the power were transversal, radial, tangential, globular or circumpolar. The more diverse the powers working together, the greater a variety of forms will result.

When a certain kind of power becomes effective, it can happen that the other existing powers work against it and *destroy* the form partially or totally.

We must consider the direction of the motion of electricity in relation to that of magnetism as being *complementary* in the sense that these forces mutually create one another. They stand at right angles to one another whereby the *movable* part conforms itself to the *stationary*. *This law universally rules everyday life*. When electricity travels through a solid medium the effect is that a movable magnet assumes a right angle position to it. On the other hand, if the magnet rod is immovable we find that the electric current circulates around it at right angles.

Since the elements received as a primeval dowry are positive as well as negative electricity and magnetism, we can imagine how complicated parallelograms of power can cooperate when electric positive potassium faces electric negative substances carbon, sulfur or phosphorus; or when positive magnetic iron is brought into contact with *non*-magnetic silver, copper, bismuth, antimony, lead or zinc.

Certain parts of such forces directly eliminate one another. For example, the typesetter's disease originates from antimony, lead and bismuth which compose the type metal and by their dust annul a part of the effect of the iron of the blood stream, so that most typesetters have a pale or gray complexion. Neither plant nor animal life can grow when these diamagnetic metals are present because they destroy the form, i. e., the individual, because they counteract the electric power. Only positive electricity can create and hold forms together.

Since it is known that *sunlight* possesses electro-chemical efficacy, just think of the photographic art; and electricity is considered to be an effective energy because it manifests currents and living power similar to moving liquids, so the directing power of the sunlight which manifests itself in plants as well as in animals is not surprising. Sunlight creates *forms* and indicates *locations*.

Therefore, when we have certain chemical compounds before us that seem to be contradictory to the law of the equivalence of power, because no separation resulted from such chemical condensation, we must understand that in such a case the form *itself* is the equivalent. For instance, crystallized benzoin is the product of liquid bitter almond oil when it has

chemically combined with a similar molecule. In other words, two amygdalin oils are fused together and the equivalent of such fusion is, on the one hand, crystallized form and, on the other, disappearanece of the odor.

Smell is a vibration the same way space is. Both can be lost. Odor is lost when it passes into a *solid state* and space is lost when its is replaced by *gravity*.

From this basic knowledge many obscure facts become clear, e. g., how it occurs that the specific offensive odor indole in our intestines, together with many other fermentation odors, disappears largely during the advance of the intestinal contents. Apparently the same law applies in this instance as in the disappearance of light by polarization inasmuch as the substance juxtaposes with its equivalent like the notes of two tuning forks in a certain direction cancel each other but appear again when the direction is changed.

The changed *direction* means a changed condition, consequently, changed *properties*. This, however, means nothing else than that our *senses* perceive the objects in a different way, and this brings us to some very important relationships.

We must first of all accept the form as a *limited* direction, as a boundary, in contrast to odor and light which have *infinite* directions without definite limits analogous to space. Only their concentration or condensation results in a certain form as the rather sharply defined focus when the sun rays are gathered by a convex lens. A convex lens diminishes, a concave lens enlarges. Our eyes and their crystal lenses have a convex construction, our nose cavity on the contrary, is a magnifying concave mirror. Our eye draws distant objects closer into a smaller form which are again enlarged on the other side of the concave background by the retina. Our nose functions microscopically since it enlarges nearby objects and draws them even closer. Our nose is a sharp watchman. It even exceeds the eye in its achievements. The nose is an equivalent of the eye and makes the eye dispensable when only nearby objects are present or where light is totally lacking.

There are animals without eyes because their nose cavity gives them much better service. An example is the blind lizard *Proteus anguineus* which is created in the subterranean waters of Carinthia in southern Austria and which has no propagative organs. This lizard develops lungs when placed in shallow water; in deeper water he develops gills. So we can conclude that it is the air which forms the lungs and the light which forms the eye. This blind lizard as well as the blind beetle *Anophthalmus,* is found in the Adelsberger Cavern.

In the Mammoth Cave in Kentucky, we find blind fishes instead of blind lizards and instead of blind beetles, blind gnats, blind spiders and blind crayfish.

Thus eyes develop only under the influence of light. Light brings forth the eye; light has attracting power and air has expanding and lung-forming power.

The organs of sight and smell are complementary, just as electricity and magnetism replace one another or are equivalent. Like the vibration directions of electricity and magnetism, the directions of the olfactory nerve ends stand at *right angles* to the eye nerves. But the olfactory nerve is the first to grow out of the brain, therefore it is the noblest nerve. So I need not see certain things to be convinced of their existence, I can just as well smell them. To smell means to anticipate, and this ability to anticipate by smelling is the *most efficient* power equivalent of the brain activity or of the soul. Indeed the soul is not a thing which is visible to our eyes since it is but a power equivalent, a condition.

To give light and to give fragrance are but two different directions which have in common that they appear by splitting a substance in a certain condition. When breaking up a hard sugar lump it gives off sparks, when breaking a porcelain plate it gleams. When a stone mason breaks a fieldstone sparks fly. Sparks also fly from flint when the steel splits off splinters. And when wood substance decomposes it glows.

When meat substance decomposes it stinks. Yet the stench, like all power equivalents, lasts only for a limited time; soon it takes new form since to stink and to smell mean to vibrate or *to be electrically*

stimulated. It can vibrate in a harmonious or inharmonious way as dissonances are necessary because they serve to animate and to excite.

The stench of decomposing urea had a constructive effect during primeval time by surrounding the ammonia NHHH with symmetrical groups and enclosing it alive with walls. The form for this purpose was the most perfect imaginable — being based on the form of water which, in its crystallized state as snow crystals shows 6 rays, each of which often holds a regular hexagon. This hexagon form of water is a directive for the growth of plant as well as animal life.

All materials wet with water, except those of high atomic weight, are subject to the fate of participating in the form and mobility of the water. They cannot rest as long as they are moist. Only when the water itself stands still, as in frozen state, does their motion also stop. But as long as their attached water is fluid they too stay in motion. Our body consists of three quarter-parts water.

Water draws the material into its shape and movement. It is therefore only necessary to bring the suitable substances in direct contact with the juices of the animal body in order to ensure constant growth and renewal of the organism. Such uninterrupted renewal means *life;* it has nothing to do with consciousness because it also takes place during sleep. The sleeping and growing child until birth in the mother's womb, proves this fact.

The changed direction or shape is a result of light condensation. The changed form takes place by the appearance of light. If we dissolve amorphous arsenic acid in hydrochloric acid and after cooling, shake this solution in a dark place, the hitherto amorphous arsenic acid suddenly *takes shape* by crystallizing into octahedrons, producing brilliant glittering. According to this process the form appears to be a *sum total* of substance and light, or as a combination of substance and electricity or another force equivalent.

No wonder that upon *breaking* of the form, the used light or electricity, or heat, is freed again. This we can observe in the glow of decomposing fish or cheese, in the heat and electricity in the liver (in which chemical separations take place) which may simultaneously produce new forms (liver worms), in alcoholic fermentation which is accompanied by the production of heat, in the fermentation processes in the digestive organs.

Since the flesh of fish contains much phosphorus, an attempt has been made to explain the glowing condition at decomposition by the oxidation of phosphine PHHH since the oxidation of phosphorus by oxygen, of arsenic by chlorine and of tin foil by sulfur vapor also take place with the *appearance of light*. But decomposing fish, as well as jelly fish, also light when their form is damaged by a mechanical injury, such as when the water is stirred by a rod or when a ship's keel sails over them; their glowing is therefore actually attributable *to splitting the form* and not to an oxidation process.

In other words: the assembling into a new form (crystallized arsenic acid) as well as the separation (porcelain chips) can be accompanied by the appearance of light. In general, the appearance of light indicates the transition into another condition either in the sense of a backward or forward movement. Since phosphorus in pure oxygen gas oxidizes *without* appearance of light we must attribute the glowing of decomposing fish to the disintegration of its substance transforming into the *new* condition for which process water acts as an intermediary.

Therefore, I believe that the oxidation of our nerve substance by itself does not produce spiritial light, but only after a separation of water has taken place. This is probably because it is not the activity and oxidation of the brain fat, but its general apathy that brings about pulpy decomposition, softening of the brain and stupidity. A suitable activity of the brain increases electric tension, therefore coherence is increased, whereas senseless or sensual dissolute living without contemplation, definitely leads to idiocy and imbecility.

LIGHT AND FORM

Light and form are related to one another as cause to effect. The shape of the entire universe is an effect of light. Light has constructive power. The intensive vegetation in summer in the upper northern regions is not due to tropical heat but to the magical constructive power of the constant effective *light* radiating in a certain direction.

A substance which, under the influence of the magical light, took on the most perfect shape and thus formed an incomparable building stone is cyanogen $C_6 N_6$, having 6 carbon in the center and 6 nitrogen at the periphery, as shown by the hexagonal form of the grape sugar.

The miraculous light which assisted in creating this figure was due to the phosphorus and sulfur chemically united with cyanogen. At that time, as still happens today, phosphorus and sulfur sucked up the sunlight which illuminated the heavy vapor of the rolling earth. Consequently, the sun did not set in either hemisphere of the earth.

When the earthly atmosphere entered the shady side, the phosphorus - sulfur - cyanogen continued to shine during the whole night. It was similar to the tower of St. John's church in Stuttgart shining brighter the darker the night, but with all its contours seeming to have vanished on a clear night. This beautiful church is built of grey sandstone which undoubtedly contains barite and gypsum as well as calcium fluoride. Since the light causes vibrations in the daytime, these continue during the night provided the air is laden with moisture and the sky is clouded; but the polarized light radiating from the moon abolishes the glimmer.

Light repeatedly constructs the perfect base form of the regular hexagon, glittering snow displays the six-ray form, and white, glimmering aragonite calcium carbonate also shows a hexagonal pillar shape. If 6 cyanogen could chemically condense in blue sulfur and phosphorus light without producing an equivalent as compensation for the condensation by splitting, then we must conclude that *symmetry* can replace splitting and that the symmetrical form — i. e., the diametrical juxtaposition of the various groups — is equivalent to splitting.

That is why the crystals of the salt of ferrocyanide of potassium (CNFe, CNFe, CNK, CNK, CNK, CNK; H_6 O_3) grow together in firm lumps into a symmetrical cross shape. The same applies to the cristals of copper vitriol. The twin formations of the crystals and their most complicated shapes (pentagon - dodecahedron) are simply the natural equivalents of their chemically complicated composition. If such crystals were not formed with numerous corners, edges and sides, then, according to the law of equivalence of forces, *branch formations,* consequently splitting, would have to result from the closely-joined substance, the same way this occurs in plant growth and also in animal nerve substance.

The symmetrical *form* plus the production of limited reflecting surfaces therefore is a new *equivalent of power;* it unveils the secret of *crystallization.* Crystallization is changed *polarized* reparation. The light-reflecting, surface-forming crystal is the counterpart of the light-swallowing shapelessness corresponding to the diamond and coal, the same as light is the counterpart of darkness.

In the symmetrical form the explosive, destroying and separating chemical forces have become prisoners of form and in narrow limits are drawn to do masonry work. Cristallization is therefore equivalent to *polarization,* because polarization is the destruction of the light by itself by means of a *crosswise* direction. Proof:

There is a sun glass flux named tourmaline which crystallizes into hexagonal columns, consisting of silicate, borate, fluoride of potash, soda, lithium, magnesia, aluminum, ferrous oxide and manganous oxide in remarkably harmonic proportions of the numbers 1, 2, 3 and 6. When we cut plates out of this transparent mineral parallel to its crystal axis and assemble them crosswise so that the direction of their column axes stand at right angles to one another, this places them in a position which means a polarization of the light. Instead of light, darkness re-

sults behind the crystal plates. Then the plates are returned to the original column axes the light again appears gradually, but disappears gradually when we continue to turn them and eventually, when reaching the crosswise direction of 90^0, darkness again appears.

The conclusion is that light and darkness are in the same direction to one another as magnetism and electricity, the light corresponding to the polarized magnetism, the darkness to polarized electricity. Electricity bears magnetism and darkness bears light. The darkness travels equatorially in an arc around the light, as the equator around the earth's axis, as electricity around a magnet.

Light travels through the tourmaline crystal polarly, as magnetism through the earth axis — it takes a straight-line way. Light attracts like magnetism. But light and darkness, day and night, complement one another to create *symmetrical forms*.

Plants, attracted by the light, are axially stretched lengthwise, but in darkness they collect material in a tangential or peripheral direction and part of the absorbed sunlight is again circumpolarly radiated in the form of electricity. And the radiating electricity takes a part of the substance with it and creates a sort of *hair* so that the leaf surfaces not exposed to the light are rougher and more hairy than those exposed to the light.

Since animal hair contains *sulfur* the human child, who has been provided with so much shining phosphorus fat, has but little body hair, and since the glimmering abdominal segment of the glow worm is also naked and bare, we may conclude that sulfur and phosphorus are related to one another like electricity to magnetism. They *complement* each other. In any case, day and night work in different directions and are factors which achieve growth alternately in axial and tangential directions. But the positive dominates the negative light. The cylindrical shape in much of creation, from the worm to the serpent's body, from the grass stem to the tree trunk, is evidence of this fact.

Sheltered from the light the spherical egg substance of animals and plants originates. In sunlight or its equivalent, heat, however, it develops into a cylindrical shape.

CYANOGEN AND WATER TRANSFORM INTO ANIMAL FLESH SUBSTANCE

It is a chemical fact that sixfold cyanogen condenses with 6 water while it splits off acid oxalate of ammonia and leaves behind *azulm acid* $C_4\ N_4$, HHO, NH_3. $C_6\ N_6\ H_{12}\ O_6 = C_4\ N_4$, HHO, $NH_3 + NH_3$, $C_2\ O_3$, $H_4\ O_2$. The remaining azulm acid retains the hexagonal form. If neutral instead of acid oxalate of ammonia is split off, that is, if a little more heat is generated, then calf urea (allantoin) remains behind, $C_4\ N_4\ H_6\ O_3$. Allantoin = CN, CN, HHO; CNH, CNHO, HHO. This substance also completely fills the six sections of the original hexa-cyanogen.

If, however, 6 cyanogen only absorb 4 instead of 6 water, the splitting product is correspondingly smaller; it will then only consist of the 4 atoms CNHO, which together form cyanic acid. The remainder, which again fills the original six sections of the cyanogen, means:

Urate of ammonia $C_5\ N_4\ H_4\ O_3$, NHHH, CNH, CNH, CNH, CNHO, NHHH, COO.

Instead of 4, only 3 water can also be chemically condensed with 6 cyanogen. Then a very peculiar substance originates that covers the swimming-bladder and scales of a fish like a silvery lining. It is also found in the excrements of some spiders and, united with uric acid, in the Peruvian guano. When *guanine* (in the guano) formes, cyanic acid is split off in considerable quantities. For its production, however, 4 times 6 cyanogen with 4 times 3 water are required. Then 3 guanine originate of $C_5\ N_5\ H_5\ O$ and 9 cyanic acid of CNHO. The guanine also again completely fills the six sections of the cyanogen, namely: Guanine = CNH, CNH, CNH, CNH, HHHN, COO less HHO.

This shows us clearly how the essential compounds of guano (oxalate and urate of ammonia) and guanine as well originate as quite simple transformation products from cyanogen and water. Added to this is the fact that, according to quite similar laws, we also arrive at the specific flesh substances xanthine, sarkin and creatine and no less at the *murexid dye* (snail dye) which are present, combined with urea and urate of ammonia, in the liver, the spleen, the blood and the muscles of mammals, birds, amphibians

and fish. Murexid, C_{16}, N_{12} H_{16} O_{12} = 4 (CNHO), 4 (CN), 2 (CNH), 2 (COO), 2 (CHH, COO, NHHH).

Xanthine originates when 24 cyanogen unite with 18 water. Then 3 xanthine, 9 cyanic acid and 3 urea result.

Sarkin requires 24 cyanogen and 21 water to produce 3 sarkin, 3 gelatine sugar and 3 nitrous urea.

Creatine results from 24 cyanogen and 30 water. This then produces 6 creatine and 3 nitric acid hydrate N_2 O_5, HHO.

Murexid is produced when 30 cyanogen absorb 24 water and separate 6 urea. If, on the contrary, 30 cyanogen chemically unite with 42 water, we obtain in addition to 6 urea and 12 ammonium carbonate, the much discussed mellit ammonia C_{12} H_6 O_{12}, 6 NH_3.

Other products also originate when sulfur and phosphorus participate in the condensation process.

6 sulfur cyanide + 12 water give: 6 carbon, 3 sulfur, 6 ammonia and 3 hydrate of sulfuric acid.

6 sulfur cyanide + 18 water give: oil forming hydrocarbon C_6 H_{12}, 3 sulfurous acid SO_2, 3 hydrate of sulfuric acid SO_3, HHO and 6 ammonia N_6 H_{18}.

6 phosphorus cyanide + 18 water give 3 times phosphoric acid united with 6 methylamine in herrings and other fishes 3 (P_2 O_5; 2 CNN, NHHH; HHO).

How Poison is Made Harmless. We can see from the figures creatine and urate of ammonia that the *poisonous* substances cyanogen CN, hydrocyanic acid (prussic acid) HCN, carbon dioxide, carbon oxide, hydrocarbon and ammonia have been "de-poisoned" in the same effective manner as the carbon dioxide and the hydrocarbon which produce *sugar* in addition to water. This takes place while they are welded to carbon at the center, and together with 4 or 5 atoms they form a coherent core. Prussic acid and cyanogen can therefore be considered as *imprisoned alive*, even though not permanently.

At this point I should like to draw your attention to a special relationship: Prussic acid CNH is produced by cyanogen CN because paired hydrogen HH or the elements of water HHO (the latter also paired or even tripled) are inserted between the nitrogen pairs. Hence, at the edges of the figures of the flesh bases we find paired nitrogen NN and paired hydrogen HH. The paired hydrogen is sometimes retained by the carbon, as in creatine CHH, so that creatine contains 2 hydrocarbon. Such oil-forming hydrocarbon gives the creatine a dual nature so the creatine represents an intermediate substance between fat and true muscle substance. Since it is united with phosphoric acid in our muscle fluid, creatine by its content of phosphoric acid, oil substance and ammonia, forms the bridge to the phosphate of ammonium oil which we call nerve fat (lecithin).

Due to this condition, anatomists are *unable* to discover the last endings of the nerve fibers where they transform into muscle flesh. That is because creatine is already *half* nerve material, and the nerve thread reels from the creatine by union with its hydrocarbons, similar to the way a spinner twists the thread of the distaff by moistening her fingers now and then with water.

This is also how the life threads and the bodies of innumerable animal forms are spun out of phosphorus-sulfur-cyanogen and water by the hand of the magic spinner called electricity or electric tenssion. From the chemical view the general conforming structure of the animal forms

lead us back to the phosphorus - sulfur - cyanogen and their transformation products with water.

According to specific gravity the *oily* substances floated on the sea surface whereas the substances richer in salt — whereby too the ammonium cyanide is meant — sunk to the bottom. The result was that large quantities of floating fat caused the creation of giant whales, while in the depths scarcely a trace of brain fat was left. The larger the quantity of brain fat, correspondingly the more muscle flesh parts were attached to it, while with traces of only ammonium fat phosphate no larger organisms could be created. This explains why the mussel chalk, which was lifted by the sea and thus brought to light, shows numberless minute snails under the lens, snails whose body substance is held by shells of calcium carbonate and phosphate as well as magnesia.There was so very little mental life in such hardly visible creatures poor in brain fat, even less than in an oyster. Like ephemera they soon perished in as large numbers as they were created in, thus explaining the billions of snail shells which we find in layer upon layer. The low mental life of these creatures serves as a step from which the intelligence arises.

VOLUME AND GRAVITY

Cyanogen CN, cyanic acid CNHO and ammonia NHHH without exception fill the space of a *triangle*. To prove this the equivalence between volume and gravity helps us.

There is a substance corresponding to cyanogen $C_6 N_6$ called benzene or benzol $C_6 H_6$, which has 6 carbons in the center but 6 hydrogens at its periphery. However, the hydrocarbons in oil (petroleum) are in the proportion of 6 carbons to 12 hydrogen, a proportion that can be accepted as normal. This is the natural sequence of a sixfold group of a triangle. Now, if instead ob 12 only 6 hydrogen remain around the carbon because the other six in union with normal hydrocarbon have been distilled, as in ethane $C_6 H_{18} = 3 (C_2 H_6)$, this proves that the expansible hydrogen can alternately fill one or two places in the triangle. In this case the space remains completely unchanged, but the *gravity* changes.

The paraffin oil hydrocarbon $C_6 H_{12}$ is as many *times as heavy* as the petroleum hydrocarbon $C_6 H_6$ as is conditioned by the remaining hydrogen atom in the triangle, i. e., by one-thirteenth part of weight. The ration of their specific gravity is 14:13; that is, approximately 0.75 : 0.70.

That the *same* space can store a greater weight is proven by cyanogen gas CN itself, because it occupies no more space than pure nitrogen weighing 14, whereas it also contains carbon with a weight of 12, so that cyanogen gas in proportion to hydrogen weighs 26.

According to the principle of impenetrability it would not be possible for a second body to simultaneously occupy the space of another body. But this simply is not true, because cyanogen gas CN occupies no more space than the nitrogen gas N itself which it contains.

If I chemically unite sulfur, phosphorus and arsenic with cyanogen gas, its space occupancy will remain the same but the gas will become exceptionally heavy. As a result of such heavy arsenic-sulfur vapor the Pennsylvanian and Canadian petroleum cannot stay within its specific gravity of 0.75 but rises to 0.90. Such equivalence between volume and gravity is the reason why I have presumed that the primeval vapor of arsenic - chlorine - fluorine - sulfur - phosphorus - cyanogen which accompanied our earth to have had the same circumference as our present atmosphere consisting only of nitrogen N and oxygen O.

In studying cyanogen gas we are concerned with the peculiarity of nitrogen which, in chemical unions, is content with more or less volume or with *no* volume at all. In this respect it resembles oxygen whose volume is likewise chemically destroyed by a double volume of hydrogen.

The fact that the space of a triangle is filled by cyanogen CN, even if also one atom of hydrogen H chemically united is added, whereby 3 atoms CNH forming a triangle, seems quite normal. The question remains whether we could also store a

fourth atom in the same space, this being oxygen, with the effect that then cyanic acid CNHO would fill the same space. In this case both nitrogen and oxygen would each have to manage with half the space. Hydrocyanic acid, a light liquid with a specific gravity of 0.697 at 18° C., floats on the water like sulfur ether. Cyanic acid, on the contrary, has a gravity of 1.11 and sinks down into the water. This only proves that in the same space where carbon, nitrogen and hydrogen are chemically united there is also room for oxygen, but the weight will certainly be increased by half.

The behavior of cyanic acid corresponds to that of acetic acid $C_2 H_4 O_2$ as well as to that of propionic acid $C_3 H_6 O_2$; while 4 hydrogen destroy the space of 2 oxygen when chemically united, acetic acid can only fill the space of 6 atoms or of 2 triangles, and propionic acid only the space of 9 atoms or of 3 triangles. It is important to know this because propionic acid, when it has a row of hydrocarbon groups behind it, forms fatty acid. Therefore, in regard to space we do not need to consider the oxygen atoms of the fatty acids in order to obtain a complete union with other groups.

Further, since legitimately, 2 hydrogens destroy the space of 1 oxygen, phosphoric acid $P_2 O_5$, when it is confronted with a hydrocarbon CHH, will only need 6 space atoms in order to effect a complete union with regular hexagonal groups. Likewise, the space of 1 Oxygen O in sulfuric acid SOOO can be disregarded when it is confronted by 1 hydrocarbon. This condition is clarified by the explanation that elasticity which accompanies the elements oxygen, hydrogen and nitrogen in gaseous condition and it comes also to the fore in chemical unions containing hydrocarbons.

I have herewith explained the reasons which form the basis for the unchangeable space of a triangle without distinguishing cyanogen CN, hydrocyanic acid CNH, cyanic acid CNHO, carbon dioxide COO, formic acid CHHOO, carbon oxide CO, hydrocarbon CHH and water HHO.

Ammonia NHHH requires a special explanation in this respect. It is clear that the volume taken up by the 4 atoms NHOC in cyanic acid can also store the 4 atoms NHHH. Added to this is the fact that these do not completely fill this space. It is of the greatest importance to recognize that in all animal processes of life there is a space destruction in ammonia gas even exceeding the destruction resulting when two volumes hydrogen gas with one volume oxygen supply not more than two volumes water gas.

Not only the nitrogen N volume has completely vanished in ammonia NHHH, but also a third part of the space, belonging to the hydrogen, is lost. Ammonia gas is double the weight of the average weight of its composite elements. Its specific gravity, as opposed to hydrogen, amounts to $8^1/_2$ whereas the average weight of its elements ($14 + 1 + 1 + 1 = 17$) only amounts to $4^1/_4$. This means that *half* the volume has disappeared; and the specific gravity has been *doubled*. There is no better illustration than this to show that volume and gravity, like the scales of a balance, rise and fall in relation to one another.

Heat and Cold Show Volume Fluctuation. A peculiar elasticity is already noticeable in ammonium hydrochloride (salmiac) but it appears with even a higher potency in the cartilage substance which consists of oil substance and ammonium carbonate. The simplest explanation of the volume fluctuation of nitrogen and nitrogenous tissues can be found in *heat* and *cold*. Fat substance free of nitrogen is not elastic. For instance, the *nose cartilage* contracts when warm blood fails to flow to it, as in fainting, when the blood of the upper part of the body retires to the large veins of the abdomen or, in dying, when all arteries empty. The nose then becomes pointed *(Facies hippocratica)*. The cartilage substance actually shrinks, thus requiring *less* space than in a warm condition.

For the same reason the jaw *ligaments* shorten as the corpse becomes colder, automatically causing the mouth to close. Rigor mortis is also attributable to such space reduction of the nitrogen-holding tissues, which takes place in the *cold*. All sinews and all muscles become short and hard through rigor mortis. The stiffness ends only when the flesh starts to decompose, because the electricity which

held together the opposing elements disappears completely. The body becomes flexible again because now gaseous ammonium carbonate is liberated which takes up considerably more space.

The relationship between life and death can be explained in a simple way: When electro - chemically opposed substances unite to form groups, this is called *growth* or *life*. If the material contains carbon and *oxygen* which unites with carbon- and *hydrogen*-containing groups, a splitting of *water* results as equivalent for this condensation and a *plant germ* is created which, united with earth and alkalies, strives toward the light. However, if the material contains carbon and *nitrogen* which unite with some oxygen- and hydrogen-holding material so that *insufficient* water is present for chemical splitting in order to compensate the equivalent for the edge condensation of the groups, then unfailingly *warmth* appears. Heat an appear only with a relative shortage of *water* in the *tissues,* which means with material lacking oxygen. I say "in the tissues" because in the oxidation of metals heat also appears but no tissues result, on the contrary, the previously cohesive metallic tin splits into pulverized tin oxide or tin *ash*.

What abundance of light shines suddenly on apparently the most dissimilar subjects. Here, botany, zoology, anatomy, embryology, pathology and therapeutics are united by two contrasts into one unity. Cold shivers and the hot glow of fever, the catarrhal cold and cholera, the refreshing and healing lemon drink, water from mineral springs and bath cures with their manifold water treatments, close by two contrasts into a solid ring. The contrasts are: carbon *dioxide* COO and carbon *nitrogen* CN (cyanogen).

Only material poor in concentrated water and oxygen is able in its chemical condensation to supply *heat* to groups which cling together. Such materials are: nitrogen carbon = cyanogen NC; nitrogen hydrogen = ammonia NHHH; phosphine = will-o'-the-wisp gas PHHH; hydrogen sulfide SHH; hydrocarbon CHH; sodium chlorine (common salt) Na_2 Cl; calcium chloride Ca_2 Cl; magnesium chloride Mg_2 Cl; iron chloride Fe_2 Cl; manganese chloride Mn_2 Cl.

How Plants and Animals Differ. Again we return to the phosphorus-sulfur-cyanogen and the concentrated salt solution of the primeval sea during a period when the atmosphere contained no oxygen to form the condition for the creation of the animal world. Since the named substances condensed while affecting one another in concentrated solution, heat was produced of necessity. This is the basis and meaning of *animal* existence in contrast tc that of the plants which do *not* produce heat while alive.

The difference between *animal* and *plant* is therefore based on chemical building material. Carbon *oxygen* COO was used for the plant germs and carbon *nitrogen* CN for the animal germs. Carbon dioxide originated from carbon nitrogen (cyanogen) and water; therefore, the animals *first* appeared in the sea water and only *later* — or in any event not earlier — did the plants appear.

Plants do *not produce* heat. To be warm means *to move*. Animal warmth and animal movement depend upon each other. They are only equivalents of *electricity* which is continually supplied to us by the sun. So it is not surprising that electricity disappears when animal movement ceases. On its way it takes water along at the same time (death sweat) which hitherto was chemically united with the tissues. The result of such separation of water is *coldness*. Its effect is that the chemically-bound ammonia shrinks into smaller space and that the sinewy vessels shorten. This explains rigor mortis.

Consequently, *not to move* means to die slowly, to become cold, to lose electricity, to become ill, to lose water, to get catarrh, to become feverish in proportion to the concentration of material, to get catarrhal fever and gastric fever.

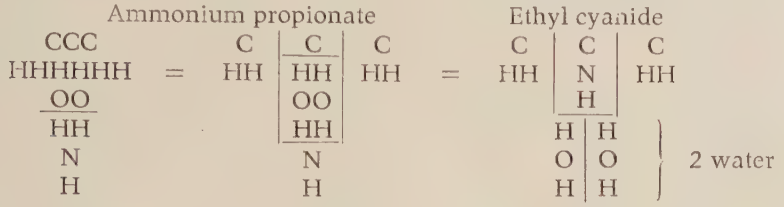
But "to move excessively" means having to pay an inordinate equivalent as a result of overheating which effects a strong separation of water, coupled with coagulation or shortening or dying of the substance, lung and pleura inflammation, brain fever, scarlet fever, measles. If the overheating is caused by excessive atmospheric temperature then the electricity radiates centripetally from the intestinal

skin, causing catarrh of the stomach and intestines, climatic fever, cholera.

On the other hand "to move with moderation" means to keep fit and electric, to be alive, warm, courageous and happy.

Treatment for the ailments mentioned is explained on page 174.

Chemistry teaches us that from compounds of ammonia with fatty acids, by simple separation of water, poisonous hydrocyanic compounds can be produced, for instance, if an alcoholic potash solution is added, ammonium propionate $C_3 H_6 O_2$, NHHH becomes ethyl cyanide by separation of 2 molecules of water.



Reversely, ethyl cyanide can be turned into propionic acids and ammonium by sulfuric acid and water. Also based on these relationship are the change of grass substance into cow flesh, the transformation of dead animal substance into abundant plant growth and the use of animal dung for fertilizing the soil. One passes into the other because simply by the shifting of atoms, another form is adopted which can be clearly studied as a typical example of the composition of ethyl cyanide with ammonium propionate.

Carbon nitrogen or cyanogen, which combined with water produces urea and ammonium carbonate, forms the necessary *basis* for our muscle flesh substance, creatine. If 7 creatine are grouped together (similar to the heptadilactid) with the oil-forming hydrocarbon $C_6 H_{12}$, a considerable quantity of animal heat appears. Such heat produces *energy* and *courage* necessary for personal protection and avoidance of evil; such warmth produces enthusiasm for the good and beautiful things in life without which it would not be worth while to be a human being; such warmth produces self-confidence and *courage*.

Vegetable vs. Meat Diet. We can live without animal protein and be healthy and productive if we adjust our way of living accordingly. Our domestic cat has twice as long an intestinal tube as a wild cat and in human beings the length of the intestinal tract varies between 12 and 24 feet. From this we can conclude that one who consumes meat in great quantities can only by degrees go over to a strict vegetarian diet in accordance with the increase of the fibers in the intestines and that when a certain weakness of all the organs exists, the complete withdrawal of meat cannot take place without danger to life.

As to the decomposition which the vegetarians use to scare meat eaters, we must repeat that without previous disintegration there can be no new formation at all. The intestinal content of the wild boar existing on plant nourishment is also badly odorous and we can observe in milk cattle how plant substance goes over into animal substance through water separation.

Our original vitality is based essentially on ammonia NHHH, resulting from fermenting *urea* which in turn originates from cyanogen gas. This ammonia which takes part in the formation of our physical substance must be electrically *united* with electro-chemically *opposite* material, namely, with the indispensable *earths* and *salts*. Then the normal processes of life occur in such a way that the *split substances*, which appear as the natural equivalents of the functions of life, contain ammonia in chemical union, be it as urate of ammonia or as ammonium cyanide (urea). My chemical figures make it implicitly clear that urate of ammonia contains ammonium cyanide.

In the orderly addition and separation of ammoniacal building stones in harmonious union with *earthy* substances, lies the meaning of *life* and *health*. However, the meaning of *disease* and *death*

lies in the fact that the *electricity* holding together chemically the ammonia, gets *lost*. In such a case the ammonia is liberated and *destroys the form*.

Game coursing is an example of the chemically-tamed ammonium cyanide decomposing into its chemically-untamed constituents: cyanogen, hydrocyanic acid, carbon oxide, ammonia and carbonate of ammonia. Bacteriologists should read this chemical truth twice.

These split products are *genuine* meat poisons causing death, because they draw the undecayed groups into their electric vibration thus causing fermentation and decomposition. Therefore the meat from game killed by coursing cannot be eaten without the risk of getting poisoned. The same applies to decomposing meat. During *decomposition* the groups disintegrate so completely that hydrocyanic acid is liberated. The blue death spots of slaughtered geese waiting for buyers during warm weather, signify a chemical union of the liberating hydrocyanic acid with a part of the blood iron forming Prussian blue (ferrocyanide). Decaying meat must not be eaten by human beings unless it is depoisoned by soaking it in vinegar.

Such vinegar acid and formic acid are formed in our stomach juice provided that we do not lack *exercise* and *breathing*. Certain ferocious animals produce considerable quantities of acetic and formic acids, like the vultures, which constantly circulate in the air or walk at a trot like dogs, wolves, jackals, foxes and hyenas. From this we can understand why those who eat lots of venison often are affected with paralysis, rheumatism and gout and as long as they do not change their diet cannot be healed. Even apparent sudden death by so-called apoplexy can be attributed to liberated hydrocyanic acid which was transferred from the flesh substance by means of creatine phosphate to the ammoniacal oil phosphate of the nerve substance.

THE CATASTROPHE

A Volume of Water 500-feet High Flung into Space. At Trondheim, Norway, the granite rocks show a shore line which rises 500 feet above sea level. Such a shore line was produced by the dissolving power of water on the rocks. The rocks have become hollow but, amazingly, the corrosion only takes place at water level. From this we could conclude that the radiating electricity took an active part in this process.

Something similar can be observed when we dip a zinc rod into diluted sulfuric acid in such a manner that only half is immersed. The rod will then be much more corroded at the surface of the liquid than in the very depth. The same applies to the shore line which only shows the traces of the various water levels between the tides.

Now, since the shore line at Trondheim lies almost 500 feet above today's sea level, either the rocks must have elevated that distance, or the water could have sunk down into the earth that far. To these two explanations, however, I add a third: Not long after its formation, the earth was subjected to a catastrophe which caused sea water 500-feet high to be flung into space.

The banks of the Nile also bear witness to such a catastrophe that took place in the form of an approximately 200-feet-high layered mountainous mass deposited by the water — that is, which in earlier days must have been covered with water. Even more striking are the steep rocks of the Chincha Islands in which the guano is buried and where the corpses of seals have been found. Seals cannot climb a vertical 200-foot rock wall and the porphyry rocks of these islands still stand out this much above sea level even after a 100-foot guano layer has been removed.

Rather than admit that the rocks rose up out of the water, one would prefer to agree that the water had soaked into the inner part of the earth through crevasses, the more so since the soaked-up water seems to appear again in the form of numerous warm springs.

However, many indications have appeared of a *violent throw* of water taking place. This fact is explained by chemical reasons based on the gradual decomposition and transformation products

which were caused by the phosphorus-sulfur-cyanogen uniting with the sea water. Guano, which we already said represented the mummified chronicle of primeval creation in well-preserved signs, also testifies that phosphorus-sulfur-cyanogen formed the gaseous principle which fertilized the earth- and salt-containing sea water.

In guano we not only find the basic animal guanine, urate and oxalate of ammonia, but also calcium oxalate - phosphate, ammonium - magnesia, potassium sulfate and oil-forming hydrocarbons as basis for the sugar substance of plants and the fat substance of animals. Of the urate of ammonia found in guano we already know that it consists of a condensation product of 3 hydrocyanic acid and 2 ammonium carbonate by the splitting off of water. Both these substances, hydrocyanic acid and ammonium carbonate (the latter in dehydrated form of urea) are found in considerable quantities in the mutation products formed by cyanogen when conducted in water. Formic acid, ammonium formate, oxalate of ammonia and urea are also produced.

To summarize, these products are always one and the same, i. e., *cyanogen* with more or less water or hydrogen and oxygen. Ammonium formate CHHOO, HHHN = C (HHO, OHH) HN = hydrocyanic acid and 2 water. Ammonium oxalate C_2 (O_3 H_6) N_2, consisting of 2 cyanogen and 3 water, is but a different grouping of the elements forming formate of urea: CO_2 H_2, COH_4 N_2.

Ammonium carbonate found in guano next to ammonium oxalate which represents the pre-condition for urate of ammonia also existing in guano, does not appear at the beginning amongst the mutation products of cyanogen gas with water; however, urea appears. Since the urea chemically unites with water it is subject to fermentation by decomposing into ammonia and ammonium carbonate (CO N_2 H_4 + HHO = NH_3 + COO, NH_3), so it becomes understandable that the presence of ammonium carbonate in guano is a fermentation product of the original urea. Such a decomposition had to precede in order to effect further chemical union.

PRIMEVAL CREATIVE PROCESSES

Ammonium oxalate, which transformed its constituents into formate of urea, appeared first, thus the possibility was there for cohesive larger atom groups because the hydrocarbon compounds of formic acid condensed into fat substance. Since urea possesses the same chemical property of uniting with hydrocarbons, it is not surprising that both substances together (formic acid and urea) united into fat with increased potency, the hydrocarbons resulting from cyanogen and water. Since urea chemically unites with acids, bases and salts, it could unite with the ammonium phosphate, potassium sulfate and sodium chloride of the sea water, in order to create the manifold types of protoplasm. In this way we must ascribe an important role to *urea* during the primeval creative processes. Urea is capable of heaping up around itself many rows of hydrocarbon. So we know dimethyl, diethyl, triethyl, tetraethyl, urea, etc.. As to formic acid, we already know that it can form fatty acids by symmetrically annexing groups of hydrocarbon.

When I talk of formate of *urea fat* I believe I am correctly designating the fat substance which led to the creation of seals and whales. By the way, the relationships between hydrocyanic acid, ammonium formate-oxalate and urea are not a debating point in chemistry. These substances transform into one another like Proteus. In order to understand how seals and whales could be created, we need but to study the creation of vinegar eellets.

Vinegar eellets are minute fidgety snakes that originate in masses in vinegar diluted with water which has been prepared by quick manufacture over shavings of beechwood. During this process, potassium phosphate, together with ammoniacal protein of the beechwood, mixed into the vinegar and changed into ammoniacal fat phosphate (lecithin or nerve

fat), thereby creating the eellets. Due to the electrifying influence of the vinegar acid *(all* acids have an electrifying effect), the ammonium carbonate in the plant protein turns to urea by separating water. This urea unites with the fat substance so that animal protein originates from which the sexless vinegar eellets are produced. On account of their sexlessness, which is a characteristic of *all* caterpillars, they cannot multiply by copulation; therefore they are an original creation.

Since the primeval ocean contained a *copious* quantity of formate of urea, ammonium phosphate and oil-forming hydrocarbon which had originated from cyanogen; further, since formic acid is a leading substance which can draw along a row of hydrocarbons with which it forms the fatty acids, and because the hydrocarbons are easily attracted to one another, animal bodies of larger dimenssion were created, instead of the tiny vinegar eellets, such as seals and whales while there was as yet no oxygen in the air. They sucked the necessary oxygen out of the formate of urea with the result that the oil-forming hydrocarbons formed an intermediate layer while the flesh bases, xanthine, sarkin, creatine and (in fishes) the guanine, deposited over and below it.

From then on, through the decay of urea which was present in excessive quantities, *ammonium carbonate* and then urate of ammonia were created. By uniting of the latter with oil substance, *gelatine sugar,* leucine and tyrosine could be formed. The water-extracting decomposition product *hydrogen sulfide* SHH also made other types of unions of flesh bases possible. By means of *sulfur,* analogous to vulcanized rubber, the products obtained a much greater elasticity and cementing power than is characteristic of the fibrous fish flesh of which the basis is essentially formed by phosphorus.

Without sulfur no sinew substance could be created which assisted the calcium phosphate of the walrus teeth and the narwhal tusk to form, on the one hand, *extremities* enabling the hippopotamus to live on land, and, on the other hand, to produce a coat of hair, which as a substitute for the seal's skin of fat, protected the mammoths, the bears and the apes against the cold. Neither could hoofs have been produced without sulfur to serve the horse and cattle, deer, goat, sheep and pig as sandals to protect the sensitive nerve substance against the stony knocks on the hard ground. And the cattle, goats, sheep and deer could not dispense with their sulfur-containing horns to defend themselves against malevolent neighbors. Finally, sulfur was necessary in union with silica and potash in order to produce *flight feathers* to carry the sea gulls and vultures out of the water wilderness into the air to enable them to search for prey.

Consequently, there remained only weak traces of silica and *hydrogen sulfide* for human creation. The apes with their coat of hair and the birds with their wings took the rights of the first-born before our time. So now, if we wish to fly, we have to do it with our *spirit* — our body is not able to do so. This, however, need not make us sad. Instead of the horny tongue of the goose we have a flattering organ, instead of the tough nose holes of the hoopoe we have noses which smell fraggrant flowers, instead of hard beaks, *lips* on which to let our *soul* swing, and instead of the physical ability to fly we have as full equivalent the ability of mental flight. If this faculty is lacking in any human being it is considered a crippled condition.

Coal Islands. If we mix equal quantities, of finely sifted coal powder, chalk, white bolus and fine sand, then add and mix sufficient petroleum till we obtain a plastic dough, subsequently add water gradually till a thin mush is obtained, pour this into a glass and let it stand, we shall have the satisfaction within 24 hours of being able to admire the precipitation of coal strata in innumerable variations. The alternate layers of sand, chalk, clay and coal very closely resemble our coal and chalk formations. We will see extremely dark strata with much coal and little chalk and very light strata with much chalk and only a little coal. The lighter strata correspond to our grey chalk rocks which burn to white when set aglow because the added coal together with the carbon dioxide of the chalk escapes in the form of carbon oxide.

Not all coal, however, has precipitated in our glass. The finest powder clinging to a little petroleum floats like an island on the water. Such *coal islands* with a little chalk, silica and formate of urea fat attached, must also be ascribed to primeval time.

Later, when carbon dioxide existed in the atmosphere, an exuberant plant growth could come into being on these islands. This was strongly promoted by the sun heat shining on and absorbed by the coal. Due to the roots, which continually sucked from the rich soil, and to the moist surroundings, such tree growth could rise which supplied us with the bamboo woods of primeval times and with *brown coal*. At present, however, we are not discussing the tree growth but the coal islands which, closely moved together with meerschaum islands, covered the entire wide ocean wilderness. Unconscious whale bodies were found floating everywhere in between.

Whale Banks of Fat! The enormous amount of oil-forming hydrocarbons together with formic acid and urea did not sink to the depths of the sea with clay, but floated on the water in coherent lumps thanks to the *cohesive power* of the hydrocarbons. These cylinder-shaped whale bodies could be regarded as a kind of savings bank of fat substance, in the sense that their fat mass, when available in sufficient quantities, sufficed to create a large number of new creatures who needed less fat but more nitrogen to build their bodies. There was no shortage in the sea of the needed nitrogen in the form of sulfate, phosphate, chlorate, and especially *cyanate of ammonia* or urea, and these soluble salts could permeate the animal membrane by endosmosis and exosmosis.

Such a conception that single larger creatures serve as foundation for many other smaller creatures is illustrated by innumerable occurrences in insect life. In this way the body substance of the caterpillar of pine moth *(Pine geometrid)* changes into hundreds of gnat larvae *(Microgaster nemorum)*. Also a generally well-known fact is the creation of maggots and flies from cheese.

Let us presume that the whale bodies remained unconscious without actually dying, that they were slightly stunned by heavy electric blows, and also that condition of the sea remained in electric tension for a certain period of time — as is an indispensable requirement to prevent flesh substance from disintegration. The changeability of the hydrocarbon within the protecting fat skin of the whale body (analogous to the pine caterpillar) was able to develop colonies of new animal forms simply by regrouping of substances. It only depended on the climate in which the whale bodies either swam in the water or laid on the beach as to whether dolphins were produced in one part of the world or if in other parts, sperm whales, seals, walruses, beavers, otters, hippopotamuses, polar bears, rhinoceros, tapirs, hogs or hyenas were created. In any event an electrical condition of the sea and atmosphere was indispensable.

In such a case the sea could take the place of a mother and the new animal forms could be developed out of the abundance of available substances in the shortest time. Today this can no longer take place in such a manner since the earth and the air no longer vibrate electrically as was the case 20,000 years ago in newly-born condition.

Unconscious, without a soul and insensitive, the whale bodies swam cluttered together like herrings on the sea surface in between the black coal islands and their body substances were reserved to experience the most manifold metamorphoses.

REGROUPING OF SUBSTANCE AN INVARIABLE RULE

Such transformations are not new to us on either a large or small scale. On a small scale, the metamorphosis of the sexless caterpillar into female or male butterfly (which no longer has any similarity at all to the earlier maggot) proves to us that all the substance has been regrouped. The many short caterpillar feet have turned into six long articulated feet and a flexible suction trunk, head tentacles and wings

appear as entirely new organs instead of the vanished biting tongues and hairy covering. This is a classic example of the transformability of the oil-forming hydrocarbons so abundantly present in the fat maggots. We shall, however, explain this more fully on a chemical basis.

This is a case of true *decomposition,* i.e., a disintegration of the compound groups into simpler components; namely, fatty acids, urea, water, leucine and tyrosine, from which in turn new forms combine. Such a decomposition causing the old form to vanish and a new form to appear takes place under two indispensable conditions: a) inactivity and b) exclusion of oxygen, or in any case a strongly confined admittance of oxygen such as we find in the cocoon, egg shells and animal membranes. Such a regrouping of substance is an invariable rule for the entire animal world, from the smallest to the largest creature.

A single example which applies to all creatures clarifies that certain electrical conditions, especially our *spiritual light,* have an extremely form-destroying and *transforming* power. We know that a *face* is beautified by joy and contentedness and that envy and ill-will in the course of time leave their unerasable traces. The fact, however, that human *arms* (like caterpillar feet) can be transformed by the power of *thought* and spiritual conditions and can disappear completely, needs physiological explanation.

In the neighborhood of Drammen near Oslo (as was published in "Skilling Magazine" in Oslo), lived a fisherman and his family whose second-born by the name of Peter came into the world without arms and grew up by the name of Peter Armless. When then mother still carried the child under her heart she once let a curse escape her lips directed at the firstborn who was a wild child, picked up everything, threw all things about and broke them: "If only you would lose your arms or, better still, have been born without arms!" The mother, who at that moment felt her child move within her, was extremely shocked at her own words, thought about them and became introspective, never ceasing to reproach herself. Although Peter was born with no arms, he, nevertheless, became a very skillful fisherman and learned to use his feet completely like arms so long as he was not wearing boots. He filled his pipe with his big toe and smoked like others. His shoulder blades had the power of a serpent and he used these as if they were protruding extremities to roll the burdens he carried from one shoulder to the other when he was tired.

The formation of the arms on the human fetus (which in the third week still resembles a crumpled-up maggot) starts after 35 days and after three months they are in beautiful harmony with the other parts of the body. Since the experience of Peter's mother took place at a time when the child's movement could be felt, a *backward formation* of the arms must have taken place in the sense of a *decomposition* analogous to the caterpillar substance.

In caterpillars a disintegration takes place which can be recognized by the characteristic bad odor which rises while the larvae pass the pupa stage in the cocoon. Such a definite odor of disintegration makes the beginner believe the substance is decomposed and lost. If, however, he investigates with a knife to see how far the transformation has progressed, he will see the pupa curl and move in a very lively manner.

The formation of the human fetus also depends on a regular removal of existing substance and addition of newly-grouped substance wherein it is accompanied by bad odors. The urine of pregnant women as well as of women in childbed (in the latter a backward formation of the matrix and a regrouping of the blood into milk also takes place) is a specific proof of the inner connection between new formation and the vibrating or moving condition of the groups which is coupled with odors.

As said before, it is always a repetition of the phenomenon of the wandering of oil-forming hydrocarbons which approach one another and part again, like the couples in counter-dancing, because they continually create new pairs of dance steps. When we study the subject with a clear mind the examination will again lead us to caproic acid $C_6 H_{12} OO$ as the

basis of stearin tallow and we will arrive at a coupled or *polarized* caproic acid which lost oxygen, namely C_{12} H_{24} OO, combined with 4 ammonium carbonate.

If we think of the fatty acids as resembling the *body* of a butterfly, the 4 ammonium carbonates then correspond to its four *wings*. Whether, however, ammonium carbonate can really unfold wings and whether butterflies can really be created out of caproic acids and ammonium carbonate we shall now test accurately.

The meat we eat decomposes in our stomach in exactly the same manner as when it putrefies. It develops all kinds of fatty acids, i. e., formic, acetic and propionic acids which mean as much as the decomposition of a sixfold hydrocarbon group (caproic acid) by oxidation through the oxygen of the arterial blood.

Formic acid	=	CH_2 O_2
Acetic acid	=	2 (CH_2) O_2
Propionic acid	=	3 (CH_2) O_2
		6 (CH_2) O_6

In addition to the fatty acids; urea, leucine and tyrosine also appear among the stomach digestive or decomposition products, exactly as in normal decomposition whereby the urea becomes noticeable through its split products ammonia and ammonium carbonate.

Certain stables which are not kept clean and are badly ventilated smell permanently of ammonium carbonate as the decomposition product of horse's urine which contains partly urea and partly oxidized tyrosine-hippuric acid. We notice a similar smell when we open a box containing common, damply-packed cigars with a high nicotine content, because nicotine, like urea, also develops ammonium carbonate upon its decomposition with water.

The chemical nature of the above-mentioned stomach putrefaction products is shown here:

Tyrosine	=	C_7 H_{14} O_2,	NH_3	C_2 O_4	(minus 3 water)
Leucine	=	C_5 H_{10}	NH_3,	CO_2	
Urea	=		N_2 H_6,	CO_2	(minus 1 water)
		C_{12} H_{24} O_2,	N_4 H_{12},	C_4 O_8	(minus 4 water)

When tyrosine, leucine and urea are united chemically we obtain a condensation product of laurostearic acid C_{12} H_{24} O_2, with 4 ammonium carbonate 4(NHHH COO), or of 2 caproic acids 2(C_6 H_{12} O_2) with 2 ammonium oxalate (urea formate = C_2 O_3, H_6 N_2) by separation of 4 water as equivalent of the chemical union.

Oil (hydrocarbons) and urea formate!

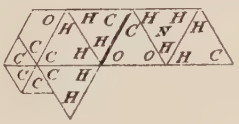
Oil (hydrocarbons) and ammonium oxalate!

That is *guano substance!*

The ammonium oxalate originated from a threefold split of a union of 6 cyanogen with 12 water. Two ammonium oxalate, after condensation with 2 laurostearic acid, again split into tyrosine, leucine and urea. These three parts which, in their union, form the long-sought ammonium oil carbonate, can reunite at suitable places either with one another or with other substances. Urea unites with ammonium oxalate into oxalous ammonium and with fat into *muscle flesh*.

Also leucine and tyrosine are well-prepared, ready building stones which can unite with acids as well as with bases, consequently with salts. They slip through all lymph and blood vessels, are found in saliva, in the abdominal fluid, in the spleen, liver, in fact in all secreting glands, but also in decaying cheese and in decaying flesh in preparations when they are preserved in too-weak alcohol.

Urea



Tyrosine

Leucine

Tyrosine, leucine and urea, these digestion or decomposition products, disclose the secret of organic growth by their specific form of crystallization. Tyrosine forms glittering crystal needles growing together concentrically into *spherical* shapes like the rolled-up spine of a hedgehog, a highly characteristic property of

this substance due to the unsymmetrical grouping of its substance.

If this asymmetric figure were to produce symmetry it would either have to attract fatty acids or — if these were available — polarize with itself since two molecules always face each other. From this follows the concentric direction of the points toward one another and the cooperation of a quantity of spears to produce a spherical form. What a beautiful fundamental proof of the teaching that without dissonants which strive for equalization no harmonious form could be created, because if only harmonies ruled, everything would remain in level position without any elevation.

Contrary to tyrosine, leucine C_6 H_{13} NOO, crystallizes with 6 carbon in the center into glittering small *flat leaves*. But urea CONH, NHHH, strives upward in four-sided *rhombic columns*.. Remembering what we have said about the form we may attribute to tyrosine the specific power to produce the spherical or *egg* shape. On the other hand, leucine accounts for growth in *width* and urea for growth in *length*.

We still have to show how everything grows from one, as follows: a) tyrosine C_9 H_{11} NO_3, when it absorbs 1 oxygen and splits off 1 water changes into hippuric acid C_9 H_9 NO_3, which, united with calcium and sodium, is found in the urine of horses, cattle, goats and sheep, and of vegetarians; b) when tyrosine absorbs 1 oxygen, splits off 1 carbon dioxide and 2 water, the reeking indole is produced; c) tyrosine is also present in plant seeds, e. g., in stones of bitter almonds, plums, cherries and apricots and dissolves, when water is added, into benzaldehyde C_7 H_6 O, and gelatine sugar C_2 H_5 NOO. This explains the taste similar to bitter almond oil (benzaldehyde) found in many fruit stones.

However, when it is proven that tyrosine also exists in plant seeds, its property to bring forth spherical forms apparently shows up equally in vegetable as in animal protoplasm. If animal plasm is created it still requires chemical union with ammonium phosphate. We then make the following interesting observations:

1) A shelled oat or rye grain cannot be distinguished by the human eye from a maggot larva. It also contains all components required by a maggot. Therefore, it is indeed possible that at one time a plant and at another time an animal originates therefrom. Plants originate when silica as well as compounds of potash, calcium, magnesium and especially *water* are added. If this is not the case the substance will regroup at insufficient heat and produce grain moths. The only requirement is that it is not shaken so that the regrouping process is not disturbed.

2) Human urine contains hippuric acid, ammonium phosphate-oxalate. If it is poured on sawdust and exposed to summer temperatures its substance will concentrate and together with the hydrocarbons of the sawdust soon transform into insects — as has long been known to the public.

3) Whether it is sawdust, foliage or straw is immaterial. Cellulose is the main factor. Therefore, when liquid manure, stable litter or dung, all of which contain ammonium phosphate, are put outdoors as stable dung — that is, when the *oxidizing air* and water evaporating wind can reach these substances — the dissolved substance groups into leucine and tyrosine and with the ammonium phosphate it first produces animal protein after which worms are formed. Compost heaps are therefore never searched in vain by domestic fowl for insects. The more the hens scratch, the more air is activated, the more water evaporates and the more concentrated the tyrosine and leucine substances affect one another — and the more *worms* are created. This is also known to the farmer.

4) When blood or bones (both contain ammonium phosphate) are covered with moist sand their substance also groups into leucine and tyrosine and produces worms. This is nothing new to our gardener. We need therefore no longer be concerned about the insects at the beginning of creation. They originated in accordance with the available substance from animal secretions and plant waste in the most varying forms.

As far as the larger animals are concerned, these were dependent for their creation on substance of the largest animals, that is, the whales. The whales had

used up all fat substance without which the bases of growth, leucine and tyrosine cannot originate. Consequently, it was necessary that whales perish first before any other living substance could develop. And indeed they perished in masses.

Their growth was completed. The separation of urea from the blood — resulting from the displacement of potassium and iron chloride with ammonium cyanide to produce the required potassium ferrocyanide and also from the lymph and from the bile as separation product and equivalent of the chemical condensation of the fats — had to cease, since no more oil-forming hydrocarbons were available for assimilation. This stopped the impulse for movement of juices in the whales as breathing did not yet exist. When the circulation stopped, electricity vanished and the flesh substance had to disintegrate.

Consequently, the formate of urea fat or caproic oxamide of the whale bodies decomposed — in accordance with the same chemical laws which are still applicable today — into three parts, namely, into urea, leucine and tyrosine. This took place first of all in the regions exposed to the sun heat because heat promotes disintegration.

Disintegration took place because no directing *soul* existed in the whale bodies; because it is the *power of the soul* that enables caterpillars to regroup the leucine and tyrosine substance into tentacles, sucking tubes, feet and wings; and by which the beak of the flamingo is given its suitable bend, its legs their suitable length, its neck the same length as its legs so as to successfully search the mud for snails, crayfish and worms. It is indeed the physically invisible but nonetheless effective power of the soul which creates or omits birthmarks and physical capabilities.

It was therefore not possible for animal forms of more than the basic cylindrical shape to originate before the spiritual moment started functioning, which is dependent on *breathing*, and breathing could not take place before oxygen existed in the air. That is why the soulless whales near the equator were doomed to perish. The body substance decomposed into fatty acids, ammonium carbonate and hydrocyanic acid. The disintegration of the whales was paralleled, corresponding to the infectious power of all decomposition processes, by the disintegration of the urea which decomposed into ammonia and ammonium carbonate and was dissolved in the sea water.

Both disintegration products, hydrocyanic acid and ammonium carbonate, produced the urate of ammonia which served as the basis for new animal forms. When the sea suddenly receded, a certain part escaped its consumption after it was piled up with ammonium oxalate and other salts in Pisco Bay in the form of Peruvian guano.

Ammonium oxalate and urate, on an average, form about one-fifth of the Peruvian guano. Calcium oxalate and phosphate also form one-fifth part. The remainder consists of ammonium phosphate, ammonia-magnesia phosphate precipitated by decomposing urea, sulfate of potash and soda, ammonium chloride, crude oil as well as sand, kieselguhr, iron oxide, clay and water. The guano is also truly a displacement product from phosphorus-sulfur-cyanogen and the salts of the original sea, and informs us without any circumlocution and hieroglyphics of the events as they occurred at the most 20,000 years ago.

What appears to be a gap in the guano report is supplemented by Chile saltpeter, anthracite coal and lignite. Since the term lignite covers a great variety of substances, I would propose to make the following four classsifications of coal:

1) Cyanogen coal for all aniline-producing coal.

2) Anthracite for the coal which does not contain arsenic and sulfur and which does not produce aniline.

3) Carbonite for the coal without wood.

4) Lignite for the coal with wood structure.

We have already discussed the cyanogen coal.

As to the anthracite which I examined in New York as burning substance, its ashes in fact consisted of aluminum silicate. Its history of origin can be understood when we accept the fact that it was the *first* to precipitate when the substance of the whale bodies started to decompose and the split products, tyrosine, leucine

and urea, chemically united in the sequence of their *specific gravity*. Tyrosine $C_9 H_{11} NO_3 = 181$; leucine $C_6 H_{13} NO_2 = 131$; urea $CO\ NN\ H_4 = 60$.

By absorption of water the urea decomposed into caustic ammonia and ammonium carbonate, while tyrosine became soluble in water by caustic ammonia. In such a case the tyrosine ammonia had to decompose together with the aluminum chloride dissolved in the sea into sal ammoniac, *coal* and propyl-aluminum hydrate. 3 ($C_9 H_8 O_3$, NHHH, NHHH) + $Al_2 O_3$. 3Cl HH = C_{24}, $C_3 H_6$, $Al_2 O_3$, $H_6 O_3$ + 3Cl HH (NN H_6).

Through the effect of the silicate in the sea water, the water must have been separated from the compound of $C_{24} + C_3 H_6$ with aluminum hydrate at the moment of precipitation. This is how *anthracite* originated.

It is characteristic that we find anthracite on the coasts of the Gulf of Mexico and in the gorges of the Appalachian Mountains which were covered by water in times past. Due to the rotation from west to east the carbon mud had to pile up there since it was barred by high mountain ridges from drifting to the west. The Orinoco and Amazon River basins are probably also supplied with anthracite since the same conditions prevailed there. The mountain water of the Andes poured boulders over the anthracite upon which, the primeval forests grew later.

After anthracite, *carbonite,* or woodfree brown coal originated from *leucine,* which with the second product of urea, produced ammonium carbonate.

Anyone who has burned brown coal knows that it smells of putrefied urine, i. e., of ammonium carbonate. Since leucine coal, contrary to tyrosine coal, contained an abundance of hydrogen, it absorbed oxygen while lying on the surface and in dry distiilation the oxidizing hydrocarbons appeared as acetic acid and ammonium butyrate which smells like sweat.

Brown coal furthermore was precipitated by clay and silica and it contains much iron disulfide (pyrite) and ferrous carbonate. This proves, on the one hand, that ferrous sulfate and aluminum sulfate (created by ammonium sulfate from iron chloride and aluminum chloride) were *reduced* to *alum earth* (aluminum-iron sulfate) by hydrocarbon compounds, whereas, on the other hand, they were precipitated by ammonium carbonate in the form of spherosiderite (ferrous carbonate) and aluminum hydrate.

In addition, we find the otherwise normal precipitations of the sea in brown coal, namely, calcium-magnesia carbonate, kieselguhr and *phosphorite* consisting of calcium phosphate, clay, iron and silica. It is always the same story.

Finally, brown coal — like mineral coal —contains the famous *mellit stone* which could originate from 1 leucine and 6 ammonium carbonate when this chemical compound came into contact with aluminum chloride. In this case 3 chlorine, together with 6 hydrogen, formed 3 hydrochloric acids 3Cl HH, which in turn, together with 6 ammonia, produced 3 sal ammoniac which separated. The created aluminum hydrate followed the law and united itself with the organic group, but since aluminum hydrate possesses 3 oxygen, its union demanded 3 *equivalents*. These originated because 2 water and 1 ammonia separated from leucine since there remained nothing else to separate after 6 hydrogen had been taken away by 3 chloride.

2 water 1 ammonia	=	$H_4 OO$, NHHH = $H_7 NOO$
Leucine	=	$C_6 H_{13} NOO$
Difference	=	$C_6 H_6$
6 ammonium carbonate	=	$C_6 N_6 H_{18} O_{12}$
Clay chloride	=	$Al_2 \cdot Cl_3$
Mellit and 6 sal ammoniac	=	$C_{12} Al_2 O_{12} + Cl_3 H_6, N_6 H_{18}$

This does not, however, exhaust the story of mellit by any means. On the contrary, this interesting substance, which proves to be a kind of microcosm, is a classic proof that the same purpose can be achieved in very different ways. We can make potassium mellitate if we oxidize ordinary coal with alkaline potassium manganate; manganese oxide $Mn_2 O_3$ then originates out of manganic acid $Mn O_3$.

Mellitic acid alone teaches us more than many terms of chemical lectures. For example it teaches us that carbon always aims to be united sixfold; further that manganese belongs to the elementary substances which develop a binding force in *two* directions and are therefore not accidentally contained in our ashes.

Because manganic acid unites twice 6 carbon, when 6 manganic acid start to function, in order to give half of their oxygen to the coal, no symmetry would result if as well as the 9 oxygen separated from the manganic acids, 3 additional water would not also take part in the formation. $C_{12} + O_9 + 3HHO = C_{12} H_6 O_{12}$. Yet the mellitic acid is not, as many believe, a benzene hexacarbonic acid $C_6 H_6$, $C_6 O_{12}$, although at distillation with caustic calcium, benzene $C_6 H_6$ is transformed and calcium carbonate remains. Such regrouping of the atoms during heating is very common. Benzoic acid $C_7 H_6$ OO does not represent benzene carbonate $C_6 H_6$ COO but a methylene quinone $C_6 H_4$ OO, CHH and yet it also supplies when distilled with calcium, calcium carbonate and benzene.

In ammonium mellitate, which originated from the decomposition products leucine and urea, we have at last found the keystone which puts the strata formations of chalk, coal and oil creations, in direct relation to the honey of the bees, to the yellow *Brassica oleifera,* aniline oil, leucine, caproic acid, lauro stearic acid, the laurel and camphor trees of the brown coal period, the ammonium acetate-butyrate in the sweat of male goats; to the oil and fat of whales and seals, the fat of deer, the butterfat of cow's milk, the fat bodies of maggots, to bee's wax, bees, ants and butterflies; but also to the ducks, swans, diver birds and lizards of the brown coal time; further, to sugar, to cellulose, to valeric, malic, acetic and oxalic calcium in plants, to indigo blue, to the indole of the pancreas, to cat's urine, to poison hemlock, hippuric acid, benzoic acid, cinnamic acid, to all blossom scents; enough — to the entire animal and plant world.

Mellitic acid contains the elements for oxalic acid and grape sugar: $C_{12} H_6 O_{12} + H_{24} O_{12} = C_6 H_{12} O_6$; $C_6 O_9$, $H_{18} O_9$.

But ammonium mellitate also contains the elements for 5 gelatine sugar and 1 ammonium bicarbonate: $C_{12} H_6 O_{12}$, $H_{18} N_6$, H_4 OO = 5 (COO, CHH, NHHH); NHHH, 2COO.

Further, aniline oil plus 1 oxalate, 2 carbonate and 1 bicarbonate of ammonia: $C_{12} H_6 O_{12}$, $H_{18} N_6$, H_4 OO = $C_6 H_7 N$; CC O_3, NN H_6, $H_6 O_3$; 2 (NHHH COO); NHHH, 2COO.

Aniline oil exists in mellit stone — in clay-holding mellit stone inasmuch as it is liberated from aluminium oxide by the putrefaction products of urea (ammonium carbonate) — and is retransformed into ammonium mellitate. Now facts are becoming clear! For we truly arrive at: "And the Lord God formed man of the dust of the ground." The human body passed through the transition period of a stone which contained the effective substances in concentrated form. These are the threads which we must follow. At this point I shall at the same time set up the framework on which we must spin the threads of mellit stone into a woven tissue leading back to China, Japan, Siam and Sumatra, from East India to Brazil and from Brazil to Canada right over the polar bears.

We find the yellow-colored aniline oil in the rape blossom much loved by bees. It is created in this blossom when a union of grape sugar and gelatine sugar results in a separation of oxalic acid and water either through the effect of the sunlight or through a union with calcium or through oxidation in the air. I only mention rape blossoms since these are most well-known, but the same theory applies to all yellow flower petals.

The relationships of oxalic acids to sugar and of ammonium oxalates to cyanogen are clearly founded in chemistry. The preparation of formic acid from oxalic acid and glycerin, and the ability of formic acid to change hydrocarbons into *fat* substance are also chemically proven.

On this foundation pillar I have devised the following structure:

1) Pure aniline oil has the characteristic scent of honey.

2) The blossom honey of the yellow anthers as well as the honey of bees con-

tains aniline oil and smells like it.

3) The indigo blue of indigo plants (these are numerous) supplies aniline oil as well as the offensive indole odor.

4) The red purple dye of mollusks (muredix) is also based on aniline oil.

5) The same applies to the blue color of the Mediterranean famous for its wealth of mussels.

6) All the plant colors (green, red, brown, etc.) are also based on aniline and can be made visible within a few hours if we mix a diluted solution of tannin with ammonium carbonate and expose the resulting intensive leaf green solution to air oxidation. Then gradually all plant colors, green, red and yellow up to autumn brown, appear.

7) The bile dyes of mammals (biliverdin, bilirubin, bilifuscin) are true aniline colors as well.

8) Animal bones supply aniline oil at dry distillation due to their leucine and tyrosine content.

9) The same applies to mineral coal.

10) From the moment aniline dyes crystallize they are scentless. They form the standard for *scent, color* and *form*.

"There is no knowledge
Ere the circle is closed,
To know but *one fact*
Is *no knowledge* at all."
Rückert, German poet

We are now out of the burial vaults of primeval creation and are entering into a living virgin forest.

THE TRANSFORMATION ABILITY OF HYDROCARBONS

From water which contained the animal decomposition product leucine or ammonium mellitate, all kinds of animal protoplasm could originate, in union with silica, calcium and magnesia, iron and manganese, *simultaneously* with all possible kinds of forest trees and sugar plants, starch and oil plants, to the extent that the liquid solution reached the point of concentration through evaporation.

The Llanos of the Orinoco valley even today show us the performance of their magical growth within a few weeks. Likewise, palms and grass, trees with sugar-holding fruits, corn, rice and sugar cane were able to sprout from the abundance of substance available 20,000 years ago when the earth originated. Within a short time a wealth of growth was produced that embraced the entire flora of the earth in *India* and which was able to serve the animals that appeared simultaneously, both as nourishment and as shelter.

In Brazil, on the other hand, where it rains when the sun reaches its *greatest height,* as well as toward the west under the influence of the Andes wall, different animal forms had to originate than in the East where it rains when the sun reaches its *lowest* position and where the Himalayas, which run parallel to the equator, stand at right angles to the Andes, which run from the equator to the south. Another reason why different conditions ruled in Brazil is the fact that at Pernambuco (Recife) the warm sea current branches off into two different directions. Therefore, the 50-foot-high arrow grass originated instead of the sago palm, the *Ceropia petalta* instead of the fig tree, thorny acacias and mimosa instead of the coconut palm, rubber-bearing plants instead of bamboo stems, the ipecacuanha plant instead of the strychnos tree: accordingly, both land and sea produced different fauna than in East India.

The putrefying process of the whale bodies at the equator produced like a youthful phoenix the snow-white and odorless leucine which shines like silk. Together with the remaining part of the tyrosine in ammoniacal solution, leucine, tyrosine and ammonia show us anew that at least three forces must work jointly to be *productive*.

Leucine itself contains not only three, but more than three times three forces or substances. It contains especially the three substances: hydrocarbon $C_5 H_{10}$, carbon dioxide COO and ammonia NHHH. Leucine further contains 1 gelatine sugar CHH COO NHHH and 2 ethylene 2 ($C_2 H_4$) or 1 butylene (base of butter fat acid) $C_4 H_8$. Again, water-free lactic acid (lactid) $C_3 H_4 O_2$, as well as ammonia and propylene $C_3 H_6$, the leading fat substance

hydrocarbon, is contained in leucine. In the event the splitting cut is not led past the carbon dioxide, (see leucine Table of Figures page 3) but across the hydrocarbons, the meat base *sarcosin* (methylglycocol) CHH COO NHHH CHH is created, instead of lactamid CHH CHH COO NHHH.

In case of chemical separation through electricity, leucine contains prussic acid CNH, acetone C_3 H_6 O, and alcohol C_2 H_6 O; furthermore, cyanogen CN, water H_4 O_2 and the hydrocarbon C_5 H_9, which on account of its unsymmetrical form cannot exist alone but polarizes immediately, which by doubling into menthene C_{10} H_{18} produces peppermint oil-camphor.

Since water *always* evaporates in electrical radiation, the splitting of cyanogen and also of cyanogen hydride does not always result in acetone and alcohol but often in its dehydrated remains C_3 H_4 and C_2 H_4 which add up to C_5 H_8 and, similar to menthene, duplicate themselves by polarizing their unsymmetrical groups. Therefore, acetone C_3 H_6 O and ethylene C_2 H_4 first produce amylaldehyde C_5 H_{10} O; thereafter, by separation of 1 water, 2 amylaldehyde condense like turpentine oil aldehyde into borneol C_{10} H_{18} O; and by separation of 2 water into borneen C_{10} H_{16}.

Borneen and borneol, created by leucine, impregnate from root to leaves and fruits all parts of the evergreen sassafras trees which form thick groves in Florida, Virginia, the Carolinas and Pennsylvania. Springing from the Gulf of Mexico, the Gulf Stream passed along here and the decomposing substance had accumulated in huge quantities, whereas the steep mountain walls prevented the dispersion of the substance. Along the coast of the Gulf of Mexico it is the sassafras tree which forms dense forests and which is saturated from top to root with Borneo camphor (borneol and borneen). In the East Indies, Japan and China (and on Formosa, haunted by earthquakes and swept by the warm kuro-sivo instead of by the Gulf Stream) the camphor tree plays this part. In other locations on the earth the hydrogen atoms on the periphery of the carbons took other positions and citren C_{10} H_{16}, tereben C_{10} H_{16}, thymen C_{10} H_{16}, and carven C_{10} H_{16} originated, instead of camphene C_{10} H_{16}. Therefore, as contemporaries of the camphor and sassafras trees, the lemon and turpentine trees, the thuja and cypresses, but also the camphor-resembling, cooling and nerve-stimulating peppermint bush, the spicy satureja, thyme, marjoram, lavender and balm mint grew up into the sunlight, covering the meadows with their carpet.

Laurel, camphor and turpentine trees, thuja and cypress are found in lignite, and acetone and alcohol truly form their bases. When I added a piece of sodium metal to a mixture of acetone and alcohol a great deal of hydrogen developed and I obtained a black-brown solution of resin which was genuine thuja resin. The balmy thuja scent with its characteristic property cannot be mistaken for any other resin.

Since leucine contains the 5 hydrocarbons of the nerve-tensing fusel oil united with ammonium carbonate, it was possible, after splitting with calcium phosphate, for calcium carbonate and caprin-ammonia phosphate N_2 H_6, P_2 O_5, 2 (C_5 H_{10}) to originate. This is the nerve oil for bees, ants, spiders and butterflies which were found so frequently in the company of camphor, laurel, thuja, cypress and pine trees during the brown coal era.

While in addition to calcium phosphate, leucine also exists in the cartilage of our bones, human industry (as well as caprice) must partly be attributed to the caprin. We possess such an abundance of tension power that leucine, separated from calcium and from ammonium phosphate, flows out in our perspiration in the form of ammonium oxycapronate C_6 H_{10} O_2 NHHH. Therefore, we can so easily mistake the origin of the gnats and mosquitoes which arose from fusel oil ammonium phosphate (thanks to the phosphine of the rushes) in high grasses amongst twining vines. As long as they have aromatic forest trees to swarm around, they are content. If, however, they smell the electrically more lively and more fragrant animal or human perspiration, their enthusiasm for this has no limits. It is a characteristic of spiritual attraction and motive power. Other products appeared when, in addition to leucine, tyrosine also took part in the creation of protoplasm.

Tyrosine $C_9 H_{11} NO_3 = C_7 H_6 O$; CHH COO, NHHH contains the elements of gelatine sugar and bitter almond oil (benzaldehyde). Through the latter, as splitting product of the tyrosine, the amygdaleae and spiraeae come together like sisters. In the Carolinas where the sassafras tree thrives, gaultheria shrubs also grow of which the essential oil (wintergreen oil) $C_8 H_8 O_3$ seems to be composed of formic acid and benzaldehyde $C_7 H_6 O$, CHH OO, whereas in reality it resulted from tyrosine by separation of hydrocyanic acid and water by oxidation. A deviating direction of separation created simultaneously benzaldehyde and salicylic acid $C_7 H_6$ OO in the spiraea shrub. However, in those locations where tyrosine and leucine were effective simultaneously, benzoic acid as well as mixed products of cyanogen and acetone were created instead of benzaldehyde oil.

In the Brazilian *Aequifoliacee ilex paraguayensis* we find the split product *caffeine* $C_8 H_{10} N_4$ OO consisting of 4 cyanogen, acetone and methyl alcohol; cyanogen and acetone from the leucine the methyl alcohol from the tyrosine. In Canada the balsam pine grows also and out of its roots ilex paraguayensis originates. $C_4 N_4$, $C_3 H_6 O$, CHH, HHO = $C_8 H_{10} N_4$ OO = caffeine. Instead of caffeine we find *theobromine* (acetone-tetracyanogen hydrate), which originated from leucine only in the cocoa trees in the low valleys of Honduras, Guatemala and Mexico. Tyrosine was transformed into coal in those areas. $C_3 H_6 O$, $C_4 N_4$, HHO = $C_7 H_8 N_4$ OO = theobromine.

On the Coromandel coast of India the *strychnine* of the poisonous nux vomica and in the Philippine Islands that of the Ignatius bean was created out of leucine and tyrosine, because from 2 tyrosine, simultaneously 2 carbon oxide and 2 sarcosin (methylglycocol), and from 5 leucine, 5 times acetone were united. As equivalent for the condensation of these 9 groups into strychnine ($C_{21} H_{22}$ NN OO), 9 water separated. $5(C_3 H_6 O) + 2(C_3 H_7 NOO) + 2$ CO minus 9 HHO = $C_{21} H_{22}$ NN OO.

Strychnine has a specific effect on the animal organism of producing tetanus cramp. It is the nature of tetanus that two parts of the nerve substance endeavor to split apart because all electricity flees to the poles; thus the electricity disappears from the heart nerves and the blood circulation stops. The extremities and tails of foxes and cats which have been poisoned with strychnine, are stretched lengthwise as if responding to an irresistible force, and the head is pulled so far forward that the point of gravity of the brain falls into one line with the spinal cord. The distortion of all muscles by the nerve-stretching is characteristic of cramp conditions.

Since symmetry demands that in strychnine the 5 acetone are in the center and the 2 carbon oxide-sarcosin stand at opposite poles, strychnine gives us a typical example of the compelling force with which a certain form is form-producing even if only small quantities are involved. Strychnine drives the electricity out of the heart to the poles while it endeavors to separate the leucine and tyrosine of our blood protein into strychnine components (carbon oxide, sarcosin, acetone).

Certain characteristic forms of the primeval creation have such force that the original protoplasm continues to form its equivalent and either disposes of the components which are not suitable for this process through oxidation in the form of carbon dioxide, or simply eliminates them by separation. In this way the quassia tree in Surinam produces the bitter essence quassin $C_{10} H_{12} O_3$ from sugar calcium through separation of water and calcium oxalate. $C_{12} H_{24} O_{12}$, $Ca_2 O = C_{10} H_{12} O_3$, $H_{12} O_6$, $Ca_2 O$, $CC O_3$.

Without the hydrocarbon's mobility, their ability *to wander* and *to constantly regroup*, individually and in groups, such processes would remain a puzzle forever.

During our studies we constantly meet the split products of leucine and tyrosine as foundation of the characteristic protoplasm, so that without them we are unable to explain the processes of primeval time whereas with their help it is not too difficult.

Now we shall find out how one thing developed after the other, after we are informed about the event which 20,000 years ago gave our earth its present form!

Eventually, the time was ripe for the earth to have its first storm of devastating, completely revolutionary force, culminating in an explosive *thunderstorm*.

Before the Storm. To set the scene let us transport ourselves back to the time when urea was produced directly or indirectly from cyanogen and it was divided into ammonia and ammonium carbonate by water absorption, then we can observe the whole ocean in its effervescence caused by the rising *carbon dioxide*. Besides iron, there was a large quantity of aluminum chloride dissolved in the sea water, which together with ammonium carbonate, precipitated porcelain earth (kaolin) and liberated carbon dioxide. At first the kaolin fallouts were united with iron and silica in the form of clay, later only with iron as red clay, and the lesser the iron content the clearer the precipitation. Thus the so-called Terra di Siena and the Armenian clay and later the white fine kaolin earth gradually settled. Some geologists have explained this phenomenon by saying that it originated from a slow weathering of feldspar "over a length of time." I consider that this peculiar chemical explanation about the origin of kaolin is extremely unscientific.

While it is true that singular feldspar crystals consist of pure orthoclase, therefore of clay-potassium silicate, yet they are rare in nature considering the tremendous masses of silicates as a whole. Here and there such pure crystallizations do occur, but generally they do not prove anything. For the most part, feldspar is accompanied by calcium silicate and iron silicate. In what way the feldspar gets rid of these constituents and what happens to them, these geologists do not really know. "They weather away," they say. Chemistry does not accept this explanation. Calcium silicate and iron silicate do not separate from feldspar even when it is millions of years old because chemical opposition is not affected by the length of time.

The sediment of clay, mingled with iron and calcium, first as *marl* and finally as pure kaolin, was the youngest of the earth's formations. That this formation took place in the ocean by precipitation is proved by the fact that bays and gulfs remaining between the saved masses of rocks were filled in with clay. The fact that the clay was occasionally covered with boulders washed down by torrents (diluvium) from mountains, does not alter the claim that clay was the last and *uppermost* formation. Yet nothing has been told to us by the geologists about *this* formation in spite of its importance, because *man* settled on the clay. How fortunate man was; with his hand tools he could build his clay huts and make pottery as soon as he succeeded in producing sparks from flintstone which singed his flax-woven shirt and burned his skin. From this time on he quickly taught himself to bake his clay pots and to cook in them. When I speak about a hard-wearing flax shirt, I mean a material woven from fibrous plants which grew in abundance and which man was able to weave easily.

One has only to add to the solution of alum a piece of hartshorn salt (ammonium salt) to visualize the froth of the primeval ocean together with the sediment of kaolin in it. As a result of the large quantities of carbon dioxide rising from the depths of the ocean, considerable vegetation was spread out in a short time. The process of urea fermentation could not be finished very quickly, because the formation of carbon dioxide kept down the temperature of the sea water and slowed down the process of decomposition. While the temperature was low in the ocean depths, the surface was warmed by the sun rays.

Camphor, laurel, thuja and cypress trees originated from these times, thriving on coal islands and shooting up exuberantly until their weight was too much for these islands. Then they fell, became driftwood and later supplied the basis for *lignite* (brown coal). Shortly after new trees took root and grew on the rotting remnants of older vegetation. This process was repeated several times until the clay was completely precipitated.

And now the sun sent its parching heat onto the transparent sea. Quickly a choking vapor of ammonium carbonate arose from the area of the equator with its decomposing products of hydrogen sulfide and hydrogen phosphine from the sea. The transition of ammonium carbonate

from its liquid form (dissolved in sea water) into gaseous form, involved the legitimate liberation of considerable electric energy, a phenomenon which takes place without fail whenever a new form or condition is created.

The First Storm, Ravaging but Beneficent. Up to this time the earth had had no atmosphere; the cyanogen had sunk into the sea and the hydrogen of the heavens was directly above the earth because the rising carbon dioxide was transformed into trees. As there was no atmosphere, no thunderstorms could have developed. But now the time arrived for the earth's *first storm,* inconceivably violent and ravaging in its power.

Has the reader ever experienced the explosion of gun powder at close range? The inhabitants of Berlin lived through one in the 1850's when the pyrotechnical works of Dobremont were blown sky high. I was standing in the apothecary laboratory in New King Street and heard a heavy dull bang, followed by another a few seconds later. After a second lull I heard a final bang.

Three separate buildings were involved in the explosions, but only in intervals as vibrations require time for their transmission. The destruction of the second building occurred only after the first was over and then came the third. The three buildings disappeared completely. The next day people flocked to the scene and I myself inspected the destruction, but there was not much to be seen as every building simply had vanished.

Now we have only to change the scene of the explosion to Mt. Chimborazo in the Ecuadorian Andes and to consider the effectiveness of the materials involved to be able to make a near-correct estimation of the consequences. We should be careful not to exaggerate when studying the events; the subject is large enough in itself and does not need artificial coloring. We do not even lack precise yardsticks. The guano and the Chile saltpeter, the meteoric swarms and the planets, together with the moon, serve us as manometers, barometers and electrometers.

We are concerned now with the vapor of ammonium carbonate or hartshorn salt spread over the seas. How much was there? I do not know — but it does not seem excessive to estimate that the quantity of hartshorn salt, partly as vapor, partly dissolved in the sea, was about the same as the existing amber resin, estimated to have been more than 5 million tons. Let us presume therefore that we measure with 5 million tons of hartshorn salt which formed the atmosphere in gas form mixed with hydrogen sulfide and phosphine. Then this gas was exposed to the sun rays for days, weeks and months. From the summit of Chimborazo near the equator an accumulated electrical tension developed finally into a St. Elmo's fire. What happened then?

Two lightning serpents, in a state of embrace for several months, suddenly separated near the equator, hissing toward the Poles; the positive serpent over the gold of the Andes and the negative one over the Rocky Mountains to the Californian copper and to Canada. This occured after many months of increasing electrical tension while ammonium carbonate became polarized, similar to the amber-turpentine aldehyde.

$$\begin{array}{l|l|l|l} \text{COOHHHN} & \text{CO} & \text{OHH} & \text{HH} \\ \text{NHHHOOC} & \text{HH} & \text{HHO} & \text{OC} \end{array}$$

Electricity is based in its innermost nature upon its reversibility or polarization, and further, the equivalent for the influence of electricity is based on *splitting water* provided that its elements are present. It is certain that the splitting of water *will* take place when I conduct electric sparks into a container filled with vapor of ammonium carbonate. I would not dare to perform this experiment because there is no exception to the law of splitting by electricity. I know how Dulong lost his eyesight and hand. It was a *nitrogen* compound (nitrogen chloride) which hacked off his hand and tore out his right eye.

In our case we are dealing with a potential explosive substance in quadruple. This is *fulminic acid* 2 CNHO in *oxyhydrogen gas* 2 HHO dissolved, i. e., oxyhydrogen gas in the most perfect stoichiometrical proportion. Now only the three explosions as in the Dobremont case are missing. Let us watch the events.

The lightning running along the Andes and the Rocky Mountains ignited the oxy-

hydrogen gas of the Western Hemisphere and the earth trembled to its foundation from the clap of thunder that followed. The oxyhydrogen gas, which separated from the heavy vapor of ammonium carbonate, formed water gas, requiring considerable space for expansion. But the elastic cosmic ether which had to be pushed away was unable to obey at once the sudden and extensive space requirement. This process meant vibrations and vibrations need time. The cosmic ether (space hydrogen), due to its elastic nature, pushed back in the first moments the too violently-congesting water gas. Now the *second* thunder clap followed with even more violence than the first. From the repercussion of water gas produced from the oxyhydrogen gas, the fulminic acid gas 2 CNHO exploded.

Only traces of fulminic mercury are needed in guns for indoor use to have the desired effect. It is impossible to utilize fulminating compounds in larger quantity, because their effect would be devastating. The decomposition and gas expansion proceed so suddenly that a gun barrel has not enough time to get into the right vibration. Such a vibration however is essential to avoid damage to the barrel. The same principle applies to glass. When gradually heated it vibrates, when suddenly heated it cracks. So does the artillery gun crack from the explosion of fulminating silver because it is deprived of the necessary time to develop vibrations.

We are facing the problem of 3.5 million tons of fulminic acid, after 1.5 million tons of oxyhydrogen gas was ignited and exploded by a giant lightning bolt, traveling from the South Pole to the North.

Astronomers who may watch from another planet will experience a blinding light which will fade soon into darkness, and they will most likely come to the same conclusion as our astronomers when they watch a similar phenomenon in another region of the cosmos. They will think: "Here again a star has burned to ash." The fact is that real life on a wandering star begins only *after* such a catastrophe takes place. Such sudden flame-up of a star appears to our observers as if it lasts for days. The explanation is that the light waves transmitted by the cosmic ether require *time* for their vibration and that most likely different regions of the cosmic space appear to be illuminated one after the other, and, owing to their extraordinary distances, are registered by our eyes as specific districts of the flaming of that cosmic star by creating the optical illusion of something fused. The traveling express train we observe from the height of a mountain appears to the eye as if it were static.

Effects of the Explosion. From the detonation of 1.5 million tons oxyhydrogen gas the fulminic acid underwent the effect of a single stupendous hammer blow experienced by the earth The earth is still staggering from the blow and as its axis is tilted it travels in 25,000 years the circumference of a cone-shaped object, resulting in a change of climate in Iceland, Greenland and Scandinavia. These land masses have some lignite from the thuja and cypress trees of the previous ages, but the cycle is soon over and we are again approaching the original conditions. In 5000 years we may be back where we were in those times before the catastrophe took place; in other words, we shall be back in the original position. What a prospect! We can then emigrate and return when the climate becomes warmer.

What happened after the second explosion? The same happened that happens today. When fulminating mercury CC OO, NN, Hg_2 receives a hammer blow, it splits into carbon oxide 2 CO, nitrogen 2 N and mercury vapor 2 Hg. Only heavy metals like gold, silver and mercury, keep fulminic acid chemically united. *Without* such weight, fulminic acid spreads its wings and escapes. Fulminic acid does not exist in a free condition, at least not above freezing point 32° F. or 0° C. It is formed from cyanic acid CONH by polymerization. If cyanic acid has a temperature above 0° C., its molecules become agitated whereby 2 molecules escape from the explosion forming fulminic acid while 6 molecules become solid, forming a porcelain white mass (cyamelid 6 CONH).

The fate of fulminic acid was the same as that of fulminic mercury, with the difference that instead of mercury gas, hydrogen gas split off. CC OO NN HH = 2 CO, NN, HH. In this way three more types of

gases: carbon oxide, nitrogen and hydrogen originated in the space *congested* by water gas and became violently separated through the effect of the hot fulminic mercury gases, just as the walls of a cannon barrel crack.

Space restriction (compression) *increases* temperature. Therefore, the hydrogen gas freed of its chemical union grew hotter. Here we can easily account for the equivalents. Heated hydrogen gas! Heated carbon oxide! Heated nitrogen! Overheated water gas! What happens when water reaches the limit in a boiler? Does it not split into hydrogen and ogygen? Does it not burst the walls of the boiler and the boiler house, as the splitting-equivalent of overheating?

In the same way then, under the impact of the exploding 3.5 million tons fulminic acid, the elastic space-hydrogen wall split, scattering the explosion products far and wide. How unbelievably remote from the seat of the detonating water gas is the boiler, dented and distorted from the pressure of steam. The boiler plate is deeply buried in the earth, the stones of the boiler house crushed to powder. It was only a small boiler and a small amount of water gas that did it. This gives us some idea what took place when 5 million tons oxyhydrogen gas and fulminic acid exploded on the earth.

Further Explosions. This flaring oxyhydrogen gas traveling from the Andes to the south and the north, smashing the fulminic acid on its way, was followed by an explosion hurling all the overheated substances, like the hot hydrogen, nitrogen, carbon oxides and water gases, into the bordering space ether. Yet they were not hurled alone into space, they carried with them the roof of the boiler house. They took with them the boiling sea with its meerschaum (magnesium silicate) floating on it, all the coal islands of the Western Hemisphere, all the whale bodies, all the hydrogen phosphide-sulfide dissolved in the sea water, all the snails that lived in it, all the cyanogen united with copper, nickel, cobalt and iron, together with the sulfur-iron tossed up from the bottom of the ocean.

They carried with them porphyry crumbled off from the Andes, because we find all these substances (the bodies of the whales were naturally reduced to their atoms in the space hydrogen) in shooting meteorites which we can see in August and November when our earth reaches the position in space where these substances stand still in accordance with the law of gravity. Naturally, the phosphine gas mechanically clinging to the meteorites ignites as soon as they enter our atmosphere by which the phenomenon of flaring shooting stars can be explained.

What happened after this outburst? The waters on both sides of the Andes vanished like the pyrotechnical laboratories of Dobremont. In these regions the ocean bed became bare of everything. The waters from the eastern side of the now eccentrically-rotating globe plunged into the sea beds and filled them up again. As it is in all fermentation processes, the other side of the earth became affected too by the fermentation and contained the same products. Only the atmosphere of ammonium carbonate was missing, because it peeled off in a coherent vapor cloak on both hemispheres from the gigantic embrace of explosive gases.

Now it was time for the *third* thunderbolt, awakening sea and earth from their slumber, soon followed by many more. The isolating porphyry glass of the Andes was then fully charged with electric tension. As soon as the waters from the other half of the earth rushed into the empty sea, the third thunderbolt struck, discharging the accumulated electricity into the *second* sea.

We know that electricity's characteristic lies in the *separation* of coherent atoms in opposition. Electricity in itself has *no* substance, it presses itself *like* a body between atoms and enforces their space distance. In this lies the *nature* of spiritual force, dominating bodies and again enforcing their *reserve,* compelling them to abandon their natural passive cohesion, molding them into *new* forms.

The huge quantity of creatine nitrate originating from the union of 24 cyanogen with 30 water had a full share in the *sedimentation* of calcium-clay dissolved in the sea by the ammonium carbonate. $C_{24} N_{24} + H_{60} O_{30} = 6(C_4 OO N_3 H_9) + 3(NN O_5, HHO)$. As this material was forced

into the putrifying fermentation process of urea, it participated in the formation of brown coal, while it separated into these split products: 1) free creatine, 2) coal, 3) ammonium carbonate, and 4) *ammonium nitrate*. $2(C_4\ OO\ NNN\ H_9) + NN\ O_5, HHO = C_4\ OO\ N_3\ H_9 + COO, NHHH + C_3 + NN\ H_6, NN\ O_5, HHO$.

The tremendous quantities of this material which must have been present, can be calculated from the rich deposits of calcium nitrate in a three-foot-thick layer known as *Chile saltpeter* between the two branches of the Andes. Up to 3000 feet above sea level the froth arose, originating from the reaction of ammonium carbonate with calcium-clay salts of the ocean and flowing into the wide valley formed by the ridges of the Andes. Here it settled and lost its carbon dioxide because it was then lying on solid rock and not on the foaming sea. And it grew into mighty deposits. Yearly, 500,000 to 1 million tons of the Chile saltpeter are shipped to all parts of the world.

Raw saltpeter contains only a fourth or fifth part of sodium nitrate. The remainder consists of iron-holding clay and calcium besides sea salt, potassium sulfate-nitrate, magnesium nitrate, etc. These ingredients indicate that ammonium carbonate-nitrate underwent a chemical change with the chlorides of sodium, calcium and magnesium of the sea water. Today neither ammonium nitrate nor sodium nitrate is found in large quantities in sea water because these substances exploded during the great catastrophe together with the ammonium carbonate of the sea. Only that amount survived which was safely deposited between the ridges of the Andes. By the chemical union of ammonium carbonate with the aluminum chloride of the sea, the carbon dioxide was driven out, causing the water to rise above 3000 feet. This water reached the crest of the Andes and the effervescence of carbon dioxide reduced the sea temperature to a very low degree.

When we allow a solution of aluminum salt, e. g., alum, to act on hartshorn salt in a large container, we can visualize on a small scale the *effervescence* of the primeval sea and its icy cold. With such low temperature of the sea and with a carbon dioxide atmosphere, opposite electricity had to develop, resulting in a storm, as can be experienced during winter in the northern regions today. The equivalent was a *repeated* reversal of chemical oppositions.

After the first lightning struck the sea, when the electric tension reached its limit, a *third* explosion followed. This time it was the ammonium *nitrate* of the sea resulting partly from creatine nitrate and ammonium phosphate which exploded up to a certain limit. (A chemical reaction of this nature forming creatine phosphate, can all the more be assumed, because creatine phosphate is the basic substance of our muscle fiber. *Pure* creatine can only be produced by depriving it of its phosphate by barite.)

The exploding parts of the ammonium nitrate split into the same substances as these salts do today when heated: nitrous oxide NN OO, nitrogen NN and water 3 HHO.

$NN\ H_6, NN\ O_5 = NN\ OO, H_6\ O_3, NN$.

The *gaseous* decomposition products of ammonium nitrate (nitrous oxide and nitrogen), raised the sea for the *third* time and when it descended it filled the atmosphere with a sweet intoxicating air, similar to the gas used by dentists. But this air was mixed with *carbon dioxide* produced from aluminum chloride and the remaining unused ammonium carbonate.

Vegetation Begins. Thanks to this carbon dioxide a luxurious vegetation spread all over the graveyard of leucine coal. The spongy sassafras trees grew like magic from the lavish material. Sago palms transformed carbon dioxide into starch. Trees grew everywhere in abundance and to such sizes that the numerous meerschaum islands of the Eastern Hemisphere, on which forests were formed, lost their balance. So did the coal islands and all the woods growing on them such as cypresses, laurels, alders, pines, ferns, willows and bamboo. All were buried in the valleys as is manifested in lignite.

Destiny of the Sea Water. That the catastrophe described by me really did happen is proved by the fact that the Chile saltpeter deposits 3000 feet above sea level, exclude the likelihood of the ocean having risen above the porphyry rocks of the

Andes. The dramatic events must have been over in a very short time. This implies the electric conductive power of the chlorine salt solution in the sea and the character of electricity, which performs its work in the shortest possible time, just as a spark mobilizes all the expanding powers the same moment it hits a barrel of gun powder.

Before we look around the Eastern Hemisphere and watch its fate, it will be interesting to find out where the sea water escaping the earth found its destiny. I have already pointed out how amazingly far away from the seat of the disaster the unrecognizable pieces of the exploded boiler were scattered. However, it is difficult to estimate, by comparison to the boiler, at what distance the *water gas,* which passively succumbed to the hurling effect owing to its elasticity and light weight, lost itself, without being hindered by gravity. From observing the pressure on window panes exerted from considerable distances, we can conclude that the water gas with its crushing power must have pressed forward to this point. It could *not* have been *air pressure* as it advances in concentric spheres, therefore growing weaker in quadratic proportion to the distance. Contrary to this, *hurling power* follows a tangential straight path. For this reason, the sea water which split into dust and fog was hurled as far away as Neptune, as shown today by that planet.

Planets Formed from Sea Water. I consider that Jupiter, Saturn, Uranus, Neptune and their moons originated from the sea of the earth hurled high up and that they consist substantially of hollow shells of ice, mixed with comparatively small amounts of earthy substances. These planets may be inhabited by living creatures as is the earth, with the difference that they would not be as cumbersome as is the earth-bound man with his chalk bones and would not need as much heat as we do. Ice might only be melted along their equators, but even if their climate is cooler than ours, it certainly must be healthier.

Clay and leucine most likely accompanied the water, together with hydrogen sulfide-phosphide, as far as Neptune. Therefore if fish and bird can exist there, why not man of a more flexible bony structure and with a finer mental and nervous system than ours? Anyway there must be some heat independent of the sun rays, generated by the intensive rotation, analogous to our internal earth heat.

Can the planet Jupiter be anything more than a hollow shell? Its surface is a thousand times larger than our earth's, and its weight, according to astronomers' calculations, is only a quarter of the earth's and rotates 28 times faster around its axis. This fast rotation leads us to the hypothesis that it must be hollow. We can demonstrate this by letting an iron weight of one pound suspended on a cord swing around our head circularly, repeating the experiment with a quarter-pound weight, and lastly with a hollow rubber ball. We shall then observe that the lighter weight rotates *faster,* which proves that Laplace was wrong when he stated that the rotation becomes faster with the contraction of the rotating weight. If Jupiter were not hollow, this giant, a thousand times larger than the earth, would not be able to continue its fast dance. Its heavy weight would prevent it.

The meerschaum (hydrous magnesium silicate) of the Western Hemisphere did not fly as far as the water froth of the sea. From it originated the planet *Mars,* with an estimated specific gravity of not more than seven-tenths that of the earth, and from which it can be concluded that it consists of a very light substance, corresponding to meerschaum. There are no mountains on Mars because the granite rocks stayed on our earth.

Thus we have shown the equivalents of meerschaum and fulminic acid exploding to be the planets Mars, Jupiter, Saturn, Uranus and Neptune, together with the *meteoric swarms,* proving and convincing us that ammonium carbonate is capable of *spreading wings* and *flying away.*

1) **Marks of the Rushing Sea Water.** The sea water of the Eastern Hemisphere flooded the ocean bed with such an impetus that it tore with it whole mountain blocks, carrying away slabs of rocks like toys. Enormous blocks of granite which were torn off and dragged by the wedge-like pressure of the waters from the Ural Mountains were found on plains at the boundaries of Brandenburg and East Prussia.

A huge granite bowl chiselled from a single block in front of the Berlin Museum is a witness to that past movement of waters. This stone was found near Berlin, but its chemical analysis corresponds to the granite of the Urals (Russia).

Geologists, in their effort to explain the "erratic" blocks, invented the general glacial or ice age. The heavy blocks, they said, fell on the ice and were carried downhill a certain distance and were eventually released. For instance, the so-called moraines in the Albis range near Zürich, in the opinion of geologists, prove that the glaciers left behind in this way the marks of their dragging effect. Those, however, who study the layer formations of the Swiss mountains, which generally manifest the characteristics of Mt. Rigi near Lucerne, i. e., the precipitated chalk carbonate and clay carbonate (marl) from the sea; will be able to understand the dragging marks. The explanation is that the sea waters rushed devastatingly from east to west, tearing off pieces of rock and carrying them along. At that time these waters rolled over a still loose and new marl layer, leaving behind dragging tracks as long as they did not reach deeper parts into which the rocks fell and settled.

An example of this can be seen in the area around Geneva, Switzerland. There the erratic blocks lie on the flat part of the left bank of the lake, on the Route de Thonon, close to the jetty. The Rhone River flows here exactly from *east* to *west;* and at the Bois de la Batie where it unites with the Arve River it leaves behind polished traces in the nagelfluh rocks, which cannot be explained by any glacier on earth. Only a sea with the irresistible force of a solid wedge rushing from east to west could have left behind such scars.

The Swiss glaciers are comparatively mild and benign. They roll in all directions, cautiously, in snake-like windings to avoid obstacles. Here and there a rock crumbles from Mont Blanc (in the French Alps near the Swiss border), remains on the ice for the time being, sinks slowly into it and is then carried away. Real granite blocks of quartz and feldspar have never been found on glaciers. The rock formations of Mont Blanc do not contain potash and calcium feldspars, only the so-called protogine, a light magnesia silicate with some iron, having no connection with the erratic blocks.

2) **Layer Deposits Unrecognizably Displaced.** One can imagine what happened to the newly-settled clay, loam and slate mud when the heavy granite blocks were dragged along by the violent force of waters. The original deposits in layers were unrecognizably displaced. Only gulfs, gorges and troughs retained their material in the deep water, over which the torrential flood battered with razor-like force.

When the waters withdrew, today's territories of France, England, Germany, Russia, Denmark and Finland were exposed above the sea water, showing partly chalk, loam, sand and marl, because the sea level was then about 450 feet lower. This is proven by the steep rocks of the Chincha Island of Peru where the calcium phosphate and the remaining sea sediments, of which guano was formed, were deposited 90-feet high and the rocks towered 180 feet above the water. Further proof is offered by the shore line of cliffs at Trondheim, Norway.

3) **Sediments Molded by Hydrogen into Mountains.** Most sediments such as mica sand, chalk, clay, coal and brown coal settled in the deepest parts of the sea. There the earth crust was naturally most yielding and the weakest, easy to elevate or to break. It stands to reason that these areas which lay originally in the deepest parts of the sea could rise the highest, when the conditions of water pressure suddenly changed.

Figuring the depth of the sea water to have been 330 feet over the entire surface of the earth, the pressure calculated from

this is so tremendous that it seems more practical to give the cubic content in miles, otherwise the figures would be unimaginable. We arrive at more than 100,000 cubic miles! Such volume of water, which in addition is saturated with salt, balances the weight of 1,200 million cubic miles of hydrogen since hydrogen gas is 12,000 times lighter than water. As the volume of the whole earth is about double, i. e., 2,500 million cubic miles, the pressure of the enclosed earth hydrogen gas after the loss of so much water became twice as great.

What had to happen, did happen. The hydrogen encased in the icy salt water solution and in slate and mica became denser than the surrounding hydrogen of the heavens and endeavored to take up its normal space. So it pushed out all the still-moist, yielding masses of earth with the whole elevating power typical of this fine balloon gas. The so far heavily-loaded hydrogen giant in toy-like fashion turned up the moist chalk clay and sandy sea bed and the limestone mountains of Java, Greece, England, Spain, Italy and Switzerland shot up like magic.

The materials deposited were still so mushy and flexible that they could be folded together like a ribbon twisted between the fingers. This is shown in the fragments laid bare by engineers when drilling tunnels, e. g., on the shore of Lake Lucerne in Switzerland, when one follows the route on the Axen Road from Tell's Chapel to Fluelen. There, within a few feet, an amazing shifting of calcium carbonate took place. Dry chalk cannot be *bent* in this way as it would easily break. so the substance must have been *fresh* and *moist* when it was pushed upwards. I dug out with bare fingers alpine violet bulbs from the marly Axen Road and had difficulty standing on my feet because of the crumbling rubble under my shoes, which is another proof. A deposit of chalk from calcium chloride and soda becomes solid and lumpy if left for even four weeks at the bottom of a vessel. It cannot be bent anymore, but becomes brittle after the water evaporates. Consequently, the settling of all the marl and clay sediments of primeval times must have taken place within a few weeks, immediately followed by the fulminic acid catastrophe.

4) **Sea Retreated, Leaving Deserts.** The Arabian sands and the Sahara show the retreat of the sea in the barrenness of the deserts. In my opinion they should not be flooded (even if this were possible at all) because it might endanger Greece, Italy and Switzerland from the pressure proportions of the Mediterranean being changed.

5) **The Birth of the Moon.** The hot springs of Greece, the continuous earthquakes of Santorin, the saturated salt content of the Dead Sea whose bed is held together with asphalt (crude oil pitch) at 1000 feet below the Mediterranean Sea level, as well as the low levels of the Caspian, Aral and Mediterranean Seas, indicate that the territory between the Aral Sea and Gibraltar suffered a considerable *loss in substance* of the earth crust. This territory comprises about 1/80th part of the entire surface of the earth. If we try to guess where this lost material is, we find that the flat *moon disc* which is about 1/80th part of the earth material, is, according to my theory, equivalent to the earth *shell.* The moon, then, is a further planetary product of the catastrophe which threw off the greatest part of the ocean.

After the sea tumbled from the Eastern Hemisphere of the earth into the gap formed in the West and after in this way, 1,200 million cubic miles of earth hydrogen *suddenly* disappeared, it follows that the hydrogen which now became available under the impulse of the *suddenness* of the catastrophe pushed out with *explosive force,* like an *air gun charge.* Such an explosive force must have had all the more an energetic and successful effect, as at that moment there was no atmosphere to be penetrated. The vapor of ammonium carbonate had just disappeared and the explosion of ammonium nitrate had not yet occurred. In fact, no atmosphere existed at all.

The air gun shot occurred from double-tensioned hydrogen gas into single-tensioned hydrogen gas. The tension difference between the two gases was not considerable. The torn-off piece from the earth's body did not fly too far away, only 50,000 miles as it was too heavy to be hurled farther. This is how our faithful com-

panion the moon was born, prevented by two reasons from returning to Mother Earth. The main factor is the generated heat of its surrounding cosmic hydrogen gas. The moon permanently floats in semi-diluted hydrogen gas, since it has no specific atmosphere of its own. The sun always sends its rays to the moon disc, either to its *convex* side turned towards the earth, or to its concave side. As the moon was sliced out of the earth cloak, it has the approximate shape of a watch crystal, showing its heavy convex side to *us*. It becomes lightest in weight during the new moon. At this time the sun rays are burning and concentrating in the concave mirror of its back and so the moon becomes practically weightless from the hot and diluted hydrogen gas. The thinner a gas is, the greater its carrying power in the sense of an air balloon, which rises when its air is driven out by heat and continuous hot air is supplied. At full moon the condition is less favorable, because then a great portion of the sun rays bounces off being dispersed by the convex side. Still, the difference is small.

On the whole the moon maintains in both phases its thin atmosphere. It has the heaviest weight during the first and last quarters, as the flatness of the disc causes a large portion of the sun rays simply to pass it by. The proportion is then similar to me offering my side as a target instead of my breast. During this time the moon is more affected by the earth's gravity and approaches it with one-ninth part of its distance, about 5,700 miles, not more. Rather, the moon retracts because the second factor comes into action, namely, the sun rays hitting our earth prevent the illuminated meteor's return to earth. The sun rays cause vibrations in the earth atmosphere and are forwarded with physical necessity to the bordering cosmic hydrogen. In this way a continuous *wave-beat* is maintained between earth and moon. It is like waves breaking on a steep rocky coast preventing the landing of ships.

6) **The Birth of the Diluvium Strata.** The chalk, limestone, sand and slate originally deposited in deep troughs suddenly were elevated as mountains, taking with them mechanically all the water that covered them. The counter pressure of the earth hydrogen prevented their collapse. They remained erect, but the raised floods rushed down from them with devastating force, tearing off and carrying away the maximum amount of rubble, clay, sand, chalk, gypsum and calcium phosphate. This deluge of boulders and shifting of rocks on the plains constitute the so-called "diluvium epoch" and is so intimately connected with the elevated chalk mountains that we cannot speak about a particular diluvial era. One happening was swiftly followed by another.

From the soft chalk and shale, out of which the mountains were formed, water and crude oil welled up, precipitated with chalk and clay. Such flow of oil from chalk and clay still occurs in Burma, Turkestan, Pennsylvania, etc. According to Professor Karpinsky's report of the Orological Institute in Leningrad in 1884, on the borders of Syr-Darja in the province of Ferghana at Mai-Bulak, northeast of the town of Namangan, the oil gushes richly from chalk-lime deposits above *coal*, therefore above coal with calcium carbonate and aluminum silicate. At the same location earth wax (osocerite) is deposited in rock fissures. Most of the gems like spinel, red corundum and ruby — crystallized aluminum earth compounds — accompany oil here and in Burma. This demonstrates clearly the connection between oil and aluminum earth.

From these limestone mountains large quantities of crude oil flowed onto the sea water and one can imagine the intensity of the heat which developed once the oil ignited by contact with nitrous oxide N_4 OO, which originated in the Western Hemisphere, besides nitrogen from ammonium nitride. Nitrous oxide used also by dentists, changes with the sugar of the pulmonary blood into carbon dioxide, nitrogen and water.

7) **The Birth of Today's Atmosphere.** The oil flowing from the limestone mountains was also subjected to the effect of nitrous oxide N_4 OO and transformed into carbon dioxide and water. The oil ignited and was only extinguished when the sea of fire, consisting of carbon dioxide, water, nitrogen and oxygen was reduced to one-fifth part of carbon di-

oxide. A burning candle dies in a mixture of 1 volume carbon dioxide and 4 volumes atmospheric air. From the present composition of the atmosphere (1 part oxygen, 4 parts nitrogen), we can draw the conclusion that, from the burning nitrous oxide N_4 OO which separated in the burning oil into nitrogen and oxygen, half of the oxygen burnt. The remaining oxygen together with the remaining nitrogen from ammonium nitrate supplied our present atmosphere, but in a 4:1 proportion mixed with *carbon dioxide.*

In such a medium the different species of protoplasm could only develop in the sequence of diminishing carbon dioxide; first the equatic, then the marsh animals and lastly the land animals. After the atmospheric carbon dioxide transformed the potash, soda, calcium and magnesia of the granite mountains into sugar and starchy plants, the preparatory chemical processes for the existence of man came to an end.

All the geological destinies described in this book must have taken place within 20,000 years, because such a period means a small eternity compared to the speed of man's mental development. The earth's history which has been handed down from generation to generation would reach much further back than is the case if the earlier atmosphere had contained oxygen, essential for the life of man and animal. We must give up completely the supposition of a pre-historic earth period. If it existed at all it must have been *very* brief. Even the *human* protoplasm must have been primevally created, almost simultaneously with all other species. If it did not originate *then,* when could it have arisen?

Electric lightning lasts but a fraction of a second. What is not caught in the momentum of electric impulse, i. e., in the state of *vibration,* is lost forever! Electric impulse means *animation* and *inspiration.*

MAN AND WILD ANIMALS CREATED

We find numerous traces of the *simultaneous* appearance of man and wild animals. The period of a generation is truly long enough to bring forth full mental development, provided the disposition is present.

In the same way that monkeys obtained the full development of their faculties in the shortest time, so did men develop their intellect bestowed on them by God. If one thinks at all, then thoughts work with fabulous speed.

Herodotus and Thucydides tell us that the people remembered the time when Greece was uninhabited. Its first inhabitants came from Macedonia. When we add the Phoenician, Egyptian, Indian, Semitic and Chinese cultures, we can count as far as we like and we cannot bring together more than 20,000 years. And it is impossible that man existed *without* culture!

The Young Earth and Mankind. Considering the increase in population by today's yardstick, based on statistical circumstances, taking also into consideration the decimating effect of epidemics, famines and wars, we will find that mankind could not have its beginning earlier than 5,700 years ago, as has already been stated in Jewish calendars. For this reason I am justified to declare that mankind is still in the early stages of its activity and that the earth is extremely young. Above all, the earth and mankind are still at the threshold of a beautiful *future.*

Greece, which is a very young country, helps us in the estimation of mankind's age. The numerous caves so charateristic of that country, the famous cave of Antiparos for example, can be explained by the chalk formation. It proves the irresistible suction effect which the fleeing hydrogen gas had on the semi-moist chalk mud. Such caves are also found elsewhere in chalk mountains and Dolomite rocks, such as the Baumann cave in the Harz Mountains, the Adelsberg grotto and the Erdmann cave in Baden. The chalk formation is still so young that here and there it is lifted up by the earth hydrogen, as happened recently in Spain.

In the caves in young chalk mountains we find the bones of mammals who retired from the hot sun rays and the coolness of night, e. g., the bones of wolves,

hyenas, bears, even stags, lions, foxes, reindeer, elephants, goats, sheep, cows, hogs and *men*. Was man the prey of animals? I don't think so because we find next to human bones *battle axes* made of flintstone. If we keep in mind the legend of Romulus and Remus who, according to the story, were brought up by a nursing she-wolf, and the legend of the doe and St. Genevieve, together with more recent reports about children who were accepted and brought up by bear mothers, then we have deer, bear, wolf and lion from which to select the suitable *foster parents* of the different human races.

It can be assumed from many analogical occurrences that the soul of animals is in a changed state when they have their young. One can observe how the domesticated hen defends her chicks. One can hardly recognize her how *angry* she looks. It is just the *revers* in mammals. How sweet are our women and how snappish some of the older spinsters. Mother love changes vicious animals into tame and trustworthy ones and the same applies to humans. I knew an elderly spinster who was unbearable, and everyone suffered from her spite, but she found her mate at last and it surprised all her friends and relatives how gentle and polite she became.

Lactating animals are devoted to unprotected and whimpering babies, as if they were their own litter. A human child can grow up unharmed with lions, bears hyenas, who recognize it as one of their own. This is still possible in the present time. Today a child is not given a young lion as a pet, but a puppy, and often a touching friendship develops between them. In 1882, the Stuttgart Zoo received a young lion together with a greyhound in the same cage. I saw them both on the day they arrived, and as a regular visitor I watched them frequently. Half a year later I enjoyed the sight of the hound licking the muzzle of the lion after feeding, and of them nestling close together.

Similary, human children shared the same protective shelter with lions, bears and hyenas, as they were regarded as members of the family. Dogs, cats and magpies, brought up in the same farmyard treat each other like brothers and sisters. The human child did *not* serve as food for its foster parents, but the other way round, because the battle axes found in caves seem to prove that man attacked his foster parents. This is still a common occurrence today. It is hard to possess weapons without testing their power.

If Greece and the Greek culture are as young as Herodotus and Thucydides testify, then I must indignantly ask how some people dare to tie us to the Greek culture? Is it not a disgraceful sign of incapacity to say that man owes his intelligence to Greek education and that he needed thousands of years to be able to use his five senses and mental power?

We have to admit that the process develops more slowly in us than in apes, who when parting the first time from the embrace of the mother's body can safely grasp the bars of their cage, while we learn to toddle only after the first year of life and even later to *speak*. In our early life we may learn so fast that we could easily develop into a wonder child. Most things we learn in childhood, but this learning tendency slows down and when we grow older new ideas will not enter our head anymore. From this we can deduct that man's mental power reached its full development during the first generations. This mental power deteriorated after man adopted a hostile attitude toward his fosterers and hunted them with his battle axe. Then he was obliged to concentrate his mental faculties on hiding himself in his cave and defending it. In this way man eventually became estranged from the magical effect of nature, which at the beginning developed his mental magnitude so harmoniously.

The Arab horse loses its natural abilities when kept in stables. Similarly does man react, whose brain is crammed in schools with *Greek culture*. Our collections, libraries, physiological laboratories with their apparatus, our artificial substitutes for the lost divine spark of light, our complicated institutions with which we claim to obtain more knowledge, the secret of life and public health are springing up more and more and sometimes absorb whole town quarters. They continuously call for new machines, apparatus, devices and instruments and require

labyrinthian buildings to house their confusing machinery. Where will all this lead to?

Is Man a Machine? In this maze of machinery one becomes eventually a machine. One forgets *to see* with one's own eyes, *to touch* with one's own hands, *to think* using natural talents. Finally, everything deviating from the contemporary viewpoint is considered as unscientific.

From what source did Greece draw its wisdom 3,000 years ago? Did they acquire it through the mediation of machines or through the study of bulky portfolios? No! They acquire their wisdom as peripatetics while moving about in *nature* and by the power of their *meditations*. And could we not do likewise and advance further than *they* did?

In the time of ancient Greece, mankind was just wearing out its toddling shoes. We are 3,000 years ahead and we hold the magic wand of *chemistry* in our hands which the Greeks did not possess. With this we can make the soil around us fertile and can transform stone into sugar, bread, milk and flesh.

We have discovered the blue hydrogen gas as the elastic ladder, on which

"The powers of heaven step up and down,
Handing the golden pail around."

What else shall I say? Let us hope that a time will come when instead of clinging to grey theories our learned men will enjoy "the green tree of life."

Some Conclusions

The pseudoscope (false-seeing machine) in the metaphoric sense is spread all over the world. With this device it is possible to overlook the plainest truth that has been accepted by the people as long as the human race has existed, and this is more than 5,000 years.

The Creation of Flies. Those who have lived in a village during the summer, where the outdoor toilets are of primitive construction, must have observed *nolens volens* that human excrements including urine produce quantities of *maggots*. They crawl and creep everythere, and surely the first human beings must have observed them. The Greek philosopher Aristotle had already registered this fact 2300 years ago.

Now experts came with their pseudoscope and said: "Let us put some of the excrement in a *hermetically*-sealed apparatus out of which we have boiled away the air. Then we shall see whether maggots and houseflies still appear, because it is possible that the flies which ordinarily place their eggs on moist, sticky spots might expel them into the air, and then, of course, their eggs would fly everywhere with the little sun dust and germinate wherever they found a favorable spot."

Whereupon the chemist replied: "No, that won't do, you must not exclude the air. Every animal needs air or it will *suffocate*." "Well," said the expert, "the device can also have *air* but we still must put the excrement into the apparatus, otherwise I cannot distinguish which is essential and which is accidental. I believe the germs and the eggs float in the air. You can have the air but without the germs which I shall destroy by heat, because before the air reaches the apparatus I will let it pass through a heated gun barrel."

That is what happened. The gun barrel was placed in a red hot oven, air was allowed to pass through it into the apparatus and behold, the expert was right: No maggots out of the excrement and no worms out of the hay infusion came into the apparatus. The chemist then advised the expert that he was mistaken "because if atmospheric air is passed through a red hot gun barrel, the iron absorbs the oxygen, creating iron oxide or rust and leaving only nitrogen behind. Since Lavoisier and Priestley established in 1774 that the *oxygen* in the air and not the nitrogen affects life functions, the experiment with the heated gun barrel cannot be used at all."

"All right," said the expert, "I will now let completely cold air with its oxygen enter the machine, but I shall definitely have to destroy the germs. I shall prove that it is the germs, and only the germs floating through the air out of which the maggots originate. I will now let the air pass over sulfuric acid as this does not absorb the oxygen but only destroys the germs." So the air passed over the sulfuric acid and no maggots appeared.

The chemist then argued: "What stories you tell! When you let air pass over sulfuric acid it absorbs sulfuric acid which can be distilled, and every gas, when dissolved in another gas, reaches a higher volatility potency. Air which has passed over sulfuric acid reddens litmus paper and neutralizes ammonia which is essential for animal life. Your experiment proves all the less because a fly is not a fish. A fish egg requires movement to come to life whereas the protoplasm of a fly maggot needs *rest* in order to develop. Once again, your experiment in the machine proves nothing."

The pseudoscope man replied that once no maggots appeared he would operate without hermetic closing, without a heated gun barrel and without sulfuric acid and the experiment would be done with air and complete rest. "I will first thoroughly boil the mixture so that the germs are destroyed. While still boiling hot I will pour the mixture into a thick glass tube till it is filled to the brim and cover it with a double layer of blotting paper. When, upon cooling, the content of the glass tube shrinks, the air can easily reach the mixture through the blotting paper, but the particles of sun dust will remain on the paper."

And no maggots appeared! The chemist was advised, and he answered: "I can see you cannot be cured. Where have you left the oxygen? Outside, but not inside. The matter over the liquid in your device is only nitrogen and carbon dioxide because the many hydrocarbons have immediately united with the small quantity of oxygen and formed carbon dioxide. Carbon dioxde, however, is one-and-a-half times as heavy as atmospheric air; we can pour it from one glass into another. Think of the Grotta Canina (dog's cave) in Naples where people can move about as the carbon dioxide which rises up out of the ground does not reach up to the level of their mouths, whereas dogs lose consciousness because the carbon dioxide lies on the ground and covers the entire height of their bodies. Since the carbon dioxide lies heavily over your mixture it prevents the light oxygen from breaking through this layer, the more so since the double blotting paper prevents any air movement and produces a motionless layer of air. The teaching of Dalton, on which you rely, that all gases expand equally in space as if no other gas were present, is regrettably an error which has been accepted from false experimentation. The erroneous teaching can be recognized in the Grotta Canina. I shall remove the blotting paper, dip a burning shaving into the air which lies over the mixture and the shaving will extinguish. And please leave your apparatus aside! The fly maggots also need light and sun warmth to come to life and the mixture must be able to evaporate in the air so that it can concentrate on the surface and in such a way permit the condensation into protein."

The chemist's prediction came true. The shaving extinguished. But the pseudoscope man said: "I first want to hear what the others say." The others, however, were too careful to say anything and kept silent, as they have done to the present day.

Flies Do Not Need Parents. Flies do not lay their maggots in the air and if we seriously wish to recognize the *truth* we can see flies originate in a flat zinc container filled with human excrement and urine and well-protected against the entry, of flies by a well-closing mosquito net but which must be in the open, exposed to the influence of air and sun. Only in this way do the natural conditions and the certainty exist that flies do not need parents.

All flies die in winter but as soon as it gets warm they are created anew out of horse dung and human excrement, as bumble bees are created out of the blossoms of red clover. We need only remember the difficulty our first swallows have in catching an early fly or gnat here and there. Although these insects die out completely every year, the summer warmth also creates them again every year in the same form out of the indole, hippuric acid and leucine in the animal excrements.

Naturally, I am not a friend of flies as they are, so to speak, the rag pickers among insects. But I do wish to protect them against accusations taken out of the air. Houseflies are by no means murderers as Dr. Grassi claims. Flies originate from us — so can we blame them for claiming their relationship by impudently annoying their creators?

If, like cats, we covered up our excrement instantaneously with soil and if we did not permit the dung in our cow sheds and stables to pile up, then no houseflies would appear but, instead, the dung would transform into plant life through the influence of the sun. If, however, it is left lying exposed to the air, houseflies appear. Why flies and not butterflies? Or, why flies and not gall flies? Why out of human excrement and not out of cat excrement? Here is the direct answer! Cat excrement smells quite different than human excrement. It is the odor which decides on the form and that is what I shall now prove chemically.

Odor Dertermines the Form. Bitter almond odor when it exists alone, produces colorless and scentless benzoin crystals in the form of prismatic columns. However, when it is attached to gelatine sugar in the form of tyrosine it concentrates and creates spherical forms, modifying the form in accordance to the material to which the odor substances are united.

Is it not true that the Jews in Smyrna have a different odor than the Zulus in Natal and the Hottentots, Kaffirs and Bushmen in South Africa, and the Zouaves of Algiers? Of all the various human races

on our earth, each has a different specific scent and each has a different *face*. The Persians, Tartars and Armenians, in general the Caucasians, smell least of all. Therefore our original mothers, the beautiful Georgian women, were blessed with vermin.

A measuring tape is of no assistance to us in anthropology. Anyone who wishes to fathom the deviations of form should not measure the skull but should send his nose ahead as an advance scout. But we must make a distinction between *active* and *passive* smelling. The nose smells actively, performing a function of the soul. Perspiration, however, does not smell actively but is being smelled which, of course is passive.

From the typical example of the bitter almond oil out of which after polarization the odorless benzoin columns arise, we can see clearly that the scent substance does not contain substance for the *soul* but only for the form. The form as such is rigid. It only becomes mobile when it is united with something *spiritual*. In the chapter "Soul and Consciousness" we shall investigate what must be understood by spiritual. As an expedient let us say that the soul is an electric moving power, so as not to confuse the soul with form. When the soul leans toward the form in order to appear, it is not equivalent to the form. One distinguishes with full right between the form of a subject and its spirit, e. g., in civil laws.

Odor substances give form by their polarization; but only one certain kind of odor, namely phosphine PHHH, gives life. Life comes through the spirit, and the spiritual not only *smells* but *illuminates* at the same time. Then how does life attain a substantial form? Is this process perceivable? No, it cannot be seen. It takes place in a mysterious way like all spiritual things. In order to animate a physical form lightning will certainly strike, a spark will surely flash, then truly a magic light will shine in the silence. This needs no time, a fleeting moment and it is done; before our eye is able to receive an impression and hold it, it is past.

Once the form is animated the spirit remains faithfully at its side for a time after once having taken hold. Only for a while! Miraculously enough, each form, each condition, lasts but a certain time, i. e., so long as it corresponds to the vibrations caused by the on-flowing tension powers. If *no* new tension powers are added the present ones die away and thereby the spirit disappears. If an original amount of tension powers remains together for a longer period of time, the substance disappearing from one pole must be newly added to the other, i. e., the form must remain in constant movement, in a state of constant rejuvenation, in constant growth and fertility. Without internal movement and increase of fluids the form is not able to retain the spirit but becomes either rigid or disintegrates. At the moment of disintegration *movement* again exists and new spirit then enters into the debris to which moving elements are added.

Putridity Always Precedes New Animation. Every destruction of an organic form preceding a new animation is called putridity. Putridity — a transitory, passing condition — means to cease to sound, to cease to vibrate, to decompose. It means dissonant vibration before the new solution into harmony. It means, also, to be excited, to tremble, to have fever, to vibrate, to sound, to call, to smell, to lighten. Putridity as such is a sharp sound, an unclear light; but united with related sounds and colors it forms a harmonic chord, a bundle of rays which, when shining through a prism into a communal focus, conjures up understanding and light in the darkest corners. Putridity is a variety of *fermentation*.

Fermentation, in its innermost being, however, means the liberation of electricity upon simultaneous disintegration of the groups. This is proven by alcohol fermentation, by indigo fermentation, by cat excrement, by slimy sugar fermentation and by the original creation of the gall fly. The original creation of gall flies which, at a superficial glance, seems to occur *without* preceding putridity nevertheless only takes place after fermentation in the literal sense of the common alcohol fermentation and accompanied by a *specific odor*.

Hydrogen Rules. So much of what seems to be completely separate is attach-

ed to the mutually-connected threads of the ever-simple basic law, to the all-ruling substance *hydrogen*.

Wherever we go we always return to this factor and through it stand at all times in the center of the whole. And we must constantly keep the whole unit in mind, otherwise understanding is not possible.

"When our spirit considers only segments instead of nature as a whole, it cannot understand its power and majesty in any of the individual fragments." — Pliny the Elder.

Transformation Ability of the Phosphates

Alcohol fermentation has been described in detail on page 19. The following are further examples of the transformation ability of the phosphates.

The wood of rotting willow stumps *smells* and *glows* from splitting phosphine. On the grounds of the Berlin botanical gardens there are several old willow stumps, one of the oldest of which was transformed into a mushroom the size of a cart wheel. Anyone there can perceive within a radius of 30 steps the specific phosphine smell which belongs to all fungi and which preceeds from these growths.

Fungi, the Result of Fermentation. Since the mysteriously-rapid building effect of phosphine is the cause of immediate creation of fungi, and since the disintegration of the chemical groups present *runs parallel* to the clustering of the phosphorus salts, the fungi were for a long time believed to be related to the fermentation processes. They are, however, *not* the cause but only the *result* of the fermentation. They cease growing as soon as the component parts are used up which are necessary for the union of their cellular tissues.

From this moment on the oxidation of alcohol into acetic acid begins on an extensive scale. The formation of acetic acid can be accelerated all the more when fungi float on the liquid because oxygen clings to solid substances in concentrated condition. But as said above, the fungi are not the cause of the acetic acid formation (vinegar) since this also takes place without fungi. For instance, after many years of preservation and occasional openings of the vessels for use, the distilled waters Acqua Quassiae, Acqua Nicotianae, Acqua Opii, which were prepared with wine alcohol, always showed an acetic acid content as a result of the oxidation by the air even though there were no fungi. Fungi need *decomposing sugar* for their creation, for example, malic acid, tartaric acid, tannic acid, citric acid in a watery solution. This means split substances which contain *carbon dioxide*. No fungi will originate from a substance which does not contain carbon dioxide, as, for instance, alcohol. Through the power of the carbon dioxides and the hydrocarbons, the nitrogen of the atmospheric air, in union with water, is transformed into ammonia and oxygen by creating gelatine sugar.

2(COO, CHH) 2N, 6HHO =
2(COO, CHH, NHHH), 3HHOO.

Mushrooms and fungi originate from decomposing sugar substance and the process is speeded up when *potash* and *calcium phosphate* are present. Therefore pine logs are inevitably subjected to fungi when they are damaged by caterpillars during a drought or are exposed to the rain for many months at building sites. Phosphates always accumulate in moist wood. Potash and calcium phosphate accelerate the creation of molds on bread, cheese, milk, fruit, jelly, meat, etc. Grape juice, currant juice, cherry juice, raspberry juice, mulberry juice, etc., are subjected to winy fermentation without the addition of yeast because they all contain phosphate salts. The same applies to cereal grain decoctions. *Without phosphate, no* alcohol and *no winy fermentation*.

Paste of potato starch by itself does not ferment or create alcohol because it contains no phosphate, rather, it becomes sour through oxidation and produces phosphorus-free mold fungi. The same

applies to a solution of gum arabic which does not produce alcohol.

We shall now discuss the erring statements of Pasteur concerning fermentation processes. This, regrettably, cannot be avoided since present-day pathology and therapy marches under Pasteur's flag, thereby causing much confusion.

The False Theories of Pasteur. *According* to Pasteur's theory grape sugar fragments with their oxidation and reduction products originate from *yeast* and are produced by its growth. Pasteur repeated these thougths from the French original researcher Turpin as Justus von Liebig had already clearly proven in 1870 in his work *Fermentation, Source of Muscle Power and Nourishment* (C. F. Winter, Publisher; Leipzig), while at the same time he rightly criticized the whole theory of Pasteur about wine, beer, vinegar and milk. Turpin stated as follows:

"By fermentation one must understand a colaboration of water and live bodies which nourish themselves and develop through absorption of component parts of the sugar whereby alcohol or vinegar are separated. This is a purely physiological function which begins and ends with the existence of small infusion plants or animals whose lives terminate only upon the complete exhaustion of sugar-containing, nourishing substance."

While Liebig cites this statement from Turpin he follows it up with his criticism of Pasteur and the bacilli in such a brief and striking summary that even today it is still exemplary. With the correction which is equally fine and adept he states as follows:

"No one will be able to find a distinction between the fundamental reasoning of Turpin and of Pasteur. Because Pasteur returned to the old aimless paths by taking up the old findings of bacteriologists with regard to the fermentation and putrefaction processes, the result was that the unity common to all these functions no longer can be seen or taken into consideration. The work has been split up into the investigation of pure details; ultimately they were occupied with finding a special cause for each of these numerous processes. For most, in fact, they did find a particular mold species and for many diseases, *cholera,* etc., as well. The height of this false theory is, that we no longer can understand how, in spite of all these enemies, the organic world can continue to exist! If we ask the researcher with the microscope what actually are the ferments of lactic acid, butyric acid, etc., the answer is the name of a fungi species! No one disputes the value of microscopes observations but eventually we must come to the conclusion that *causes cannot be seen by microscopes!"*

We should now observe the drive which obsesses the bacteriologists who still continue to look for the cause of sickness in bacteria, whereas today every chemist knows that the animal hemoglobin (blood iron) easily crystallizes into various forms when there is a shortage of liquifying soda in the blood.

In his works Liebig mentions that during an excursion near Tegernsee in Bavaria he noticed a tree growing up out of a rock crevice. The granite rock, fructified by the carbon dioxide of rain water during a thunderstorm, transformed into protoplasm out of which the tree developed. Anyone who wants to see can observe numerous examples. Out of rocks showing cracks of but a few millimeters a young beech tree grew five feet high. The crack was so fine that a beech nut could not drop in. Therefore it must have been a primeval creation. An even more striking example, on a path along a lake between Oslo and Sarabraaten I saw several beeches growing out of steep sunlit rocks five- to six feet below the water surface! Beech nuts float on the water, they do not dive down a steep rock 5 or 6 feet under the water to germinate there, another indication of a *genuine metamorphosis* resulting from the union of rock and water.

If forest trees are being created why then should not the minute yeast cells be created as well? All conditions for it are at hand: carbon dioxide, sugar and protein, including calcium phosphate and, what is most important, *electricity* and *air* because the creation of yeast is prompted by a regrouping of a part of the grape juice material or starch sugar-protein material due to the liberating *electricity* and *motion.*

Electricity Liberated During Fermentation. The liberation of electricity is proved by its results. Electricity decomposes water into hydrogen and oxygen and these create in their electrically-vibrating, new-born condition (status nascendi) the respective chemical condensations.

Aside from the hydrogen addition-products succine acid glycerin which appear in winy fermentation, other substances also confirm that during all fermentation processes *hydrogen* is separated from water. The proof of the presence of hydrogen is the main point because the effect of the oxidizing oxygen proves nothing as there is plenty of oxygen present in the air. Since hydrogen as an addition factor is evident in certain groups, it proves that water has been electrolytically *decomposed* because our air does not contain hydrogen. Yet electrolytically-decomposed water signifies that *electricity* has been at work and electricity cannot do this, before it is available in a free-moving condition.

For further proof of electrolytical decomposition of water in fermentation processes there is *manna sugar* $C_6 H_{14} O_6$ produced during the slimy fermentation of many kinds of sugar apart from mucous acid $C_6 H_{10} O_8$. To the hydrocarbons of certain sugar groups *oxygen* is added, to the carbon dioxide of *other* sugar groups hydrogen is added, whereby manna sugar results. That actually *hydrogen, by its* addition to grape sugar, produces manna sugar is proven by the fact that the fermentation of *pure water* itself when electrolytically decomposed by sodium amalgam, again creates manna sugar if grape sugar is dissolved in the water.

A third proof that electricity is liberated during fermentation processes while water is decomposed into oxygen and *hydrogen* is the *indigo fermentation* whereby *free* hydrogen gas appears. The simultaneously-liberated oxygen is used to oxidize plant sap, united with calcium earth and indigo white $C_{16} H_{12} NN OO$, by water separation into indigo blue $C_{16} H_{10} NN OO$.

When hydrogen is added to indigo blue by means of sodium amalgam, oxindole $C_{16} H_{14} NN OO$ results. And when thereafter, by galvanic electricity and heat (by distillation with zinc dust), oxygen OO is extracted from the oxindole, then the afore-mentioned stink substance indole $2(C_8 H_7 N)$ results. From the indole appearing in animal intestines, cats, characteristically rich in electricity, produce poison hemlock $C_8 H_{15} N$ by the addition of 8 hydrogen. That cats can do this without becoming poisoned themselves is due to their very tough, sinewy intestinal walls together with the fermentation process in their intestines whereby hydrogen is liberated, since physiological chemistry has definitely proven that *hydrogen gas* is present in the intestinal gases as well as in the exhaled air.

Since hydrogen gas cannot be separated from water except through electrolytical decomposition, the hydrogen addition-products succinic acid and glycerin during sugar fermentation, the free hydrogen during indigo fermentation, the hydrogen during intestinal fermentation and the manna sugar during mucous fermentation, prove that *during all fermentation processes electricity is liberated and that the liberation of electricity always accompanies the fermentation phenomenon.*

As the present form disintegrates during the fermentation process and out of the destroyed form the tension powers which held it together are set free again, a *new* form-building begins immediately, manifested by new *plant* growth (mold fungi, yeast fungi) as long as *carbon dioxide* is developed.

The Birth of Insects. However, when the production of carbon dioxide has ceased, from the moist material *animals* (insects) are produced, provided that the material contains phosphate and gelatine sugar. I really should write this sentence twice, once for primeval times and once for the present.

Our present proof is the appearance of little vinegar gnats in fruit juices after completed carbon dioxide fermentation. All pharmacists know these tiny gnats which originate from the upper white layer of fermented *raspberry juice*. This white layer floats on the juice like a movable coat consisting of millions of larva germs. It develops out of the original pectin jelly of the unfermented juice and contains the gathering *phosphates* of

the raspberry juice. Such a floating layer develops within 24 to 36 hours and when it becomes visible hundreds of the minute vinegar gnats appear, which as though intoxicated, swarm around their birthplace. Such a creature needs very little time in the warm month of August to pass through the stages of egg, larva and winged insect by means of the form-giving phosphate.

There are pharmacists who believe that these armies of gnats appearing suddenly are attracted by the rising scent of the raspberry ether, but far from it; it is in fact this fine scent which brings into existence these minute creatures. The resulting vibration of the electrical fermentation process, jointly with the evaporation and concentration of the fruit juices on their surface during the height of summer whereby electricity is released, together with the raspberry ether, the pectin glycol, the phosphate, creates these little gnats. They do not exist for a second time within a 2-mile radius of the place where the pharmacist is located and can therefore not have been attracted from another spot. Here the raspberry juice has laid eggs which produced gnats.

Always and everywhere there are fermentation processes with the electric effect of the hydrogen which creates *specific scents* accompanying and conditioning a certain new formation. This law is applicable on both a large and a small scale. It can be chemically proven by the odors which take part in the formation of *flies* and *tapeworms*. The latter relate to the trichinae worms and the *animal* intestinal worms, whereas the *gall flies* are characteristic of *plant* worms and lead us to the conclusion that all winged insects are the primeval parasites of vegetation. We find fermentation processes everywhere in the sense that the materials are electrolytically decomposed through the influence of the sun and unite again into new groups during the cool night. In this connection we can get the clearest understanding from something we see every day, the common housefly.

Houseflies scarcely exist in apartments with water closets, because the specific closet smell of indole is absent.

The chemical composition of indole $C_8\ H_7\ N$ produced by the pancreas gland indicates that it is the result of fermenting blood albumin supplied by thin branches coming from the spleen artery. The insufficient supply of arterial oxygen coming from these thin branches to the voluminous pancreas causes an incomplete oxidation of the tyrosine, which after absorption of 1 atom oxygen becomes indole when 1 carbon dioxide and 2 water are separated. $O_9\ H_{11}\ NO_3 + O - (CO_2, H_4\ O_2) = C_8\ H_7\ N$. The indole supplied in this way by the pancreas has a highly-exciting effect on the function of the intestinal nerves and is of highest importance for the digestion. Through absorption of water and formic acid it can be converted back into the form-giving tyrosine.

$C_8\ H_7\ N + CH_2\ OO + HHO = C_9\ H_{11}\ NO_3$.

Formic acid COO HH required for such a conversion consists of COO when hydrogen HH acts on it, as is the case during fermentation. In this way tyrosine which is the specific egg-forming substance, is supplied by the fermentation of the excrements, regardless of whether this occurs inside the digestive tract by bloating or outside of the organism. Now we have the link between *tapeworms* and *fly larvae*. The following chemical processes provide the necessary explanations:

It must be considered that excrements are gold-colored by the bile dye bilifuscin $C_{16}\ H_{20}\ NN\ O_4$. Bilifuscin contains the elements of glycolic and acetic *aniline*. $C_{16}\ H_{20}\ NN\ O_4 = COO, CHH, C_6\ H_7\ N; CHH, CHH, OO\ C_6\ H_7\ N$. Since acetic or methylformic aniline already contains pre-formed formic acid, only water is required to change indole into tyrosine. As far as the separated methylaniline is concerned, together with the glycolic aniline of the bile color it supplies an aniline-colored *sarcosin*, colored flesh substance $CHH, C_6\ H_7\ N, COO, CHH, C_6\ H_7\ N = CHH, CHH, COO, NHHH; NHHH, 2(C_6\ H_4)$.

To this condition the butterflies and caterpillars, which are iridescent in all kinds of aniline colors and live from aniline-colored plant saps, owe their beautiful robes. The tapeworms, fly larvae and cheese larvae are, however, colorless because of this condition.

A certain part of brown bile dye (bili-

fuscin) chemically unites with the indole producing acetic glycolic aniline white (leucaniline) C_{20}, H_{21} N_3.
C_{16} H_{20} NN O_4 + C_8 H_7 N =
C_{20} H_{21} N_3; CC H_4 OO, CC HH OO.

This colorless substance forms an integral part of the larva body and also that of the tapeworm. When the tapeworm putrefies the indole odor appears again and the brown bile dye bilifuscin, as well. It is different in the fly larvae. As soon as they have completed the metamorphosis into winged insects, they appear in the metallically-shining robe known as the fuchsin color.

The glycolic acids and acetic acids oxidize into oxalic acid and the aniline white (leucaniline) C_{20} H_{21} N_3 produces *rosaniline* $C_{20}H_{19}N_3$, and chrysanline $C_{20}H_{17}N_3$. These aniline colors can be extracted from fly larvae by an alcoholic solution of calcium chlorine and thereby its origin from leucaniline, indole and bile color is as certainly proven as in the case of the tapeworm.

The same condition exists in the *trichinae* of pigs. The bile acid of pigs (hyocholal acid) has one more hydrocarbon CHH than the bile acid of humans and cattle; therefore, another type of intestinal worm will result. Trichinae occur in nourishment deficient in calcium (such as swill, potatoes, waste from alcohol production). Trichinae will therefore never enclose themselves in calcium as *calcium* is destructive to their protoplasm, the same as it is to *all parasites* of animal or plant origin. In order to protect themselves when calcium salts come near them, they contract into a spiral shape in the smallest possible space and let themselves be imprisoned entirely against their will. To use the expression "they capsulate themselves" is entirely wrong. Calcium earth expels ammonia, separates aniline compounds and, together with the ammonium phosphate which forms the basis of all animal life, forms sediment; therefore, trichinae withdraw into the smallest space when approached by calcium salts. *Moral: Calcium preparations protect against intestinal worms.* Calcium sulfate (gypsum) and ground rock as fertilizer on the fields and pastures in autumn protect against plant worms and insects. *Warning:* All chloride hydrocarbons, all copper, lead, zinc and arsenic salts are enemies of plant and animal protoplasm and their use should be forbidden.

Flies need indole and the aniline colors for their body substance and their metal-green shining dress does not let the smell be perceived, the same as other beautiful aniline colors do not give away the smell of coal tar from which they originate. This, then, only leaves the following chemical relationships to give us a coherent picture:

1) When leucine C_6 H_{13} NOO loses the elements of 2 water H_4 OO, benzene C_6 H_6 and ammonia NHHH result. These two products are supplied by *mineral coal* during dry distillation. Therefore, leucine united with clay is contained in the coal.

2) When before such distillation a partial oxidation occurs, the leucine of the mineral coal must change into aniline because the clay retains the water. Newcastle coal does in fact supply aniline. C_6 H_{13} NOO + O − H_6 O_3 = C_6 H_7 N.

3) Since animal bones contain leucine as well as oil we can understand the very unpleasent indole smell when the bones oxidize in the knacker's yard.

4) We can also understand that when animal bones are covered by a thin layer of moist soil, such indole together with aniline and calcium phosphate will produce larvae which in due course will develop into the steel-blue-colored flies *(Sarkophaga mortuorum).*

The indigo-blue dung beetle originating from the excrements of *domestic animals,* the aniline-green beetle from decomposed squashed *slugs,* the yellow-gold wasps, on the contrary, from the aniline-yellow glycerin-containing honey of blossoms and the annually newly-created bumble bee from the aniline-colored red clover at the time of its second bloom — all these insects originate as the result of similar chemical processes. So it seems to me as if an aniline rainbow from the coal mines stretches over animal bones up to the highest tree tops with all their butterflies and that the distinction between rocks, plants and animals is no other than the various colors of a rainbow which in their union produce *white sunlight.*

Further Metamorphoses

The Amazing Transformation Ability of the Nerve Substance.

The most important, and at first quite incomprehensible metamorphosis is that from apparently uniform idle substance, such as the egg yolk or the egg white can create creatures with limbs which move by their own force and also possess a "soul".

First, I shall explain a condition about which the professional physiologists alas can give no information since they are too occupied with the microscope. The microscope serves only as a hindrance to the discovery of the significant factor, the amazing transformation ability of the nerve substance.

The nerve substance takes on any form it wishes. The physiologists Remak, Waldeyer and Schultze have determined that the nerve cords consist of single fibers and tubes, like a submarine telegraph cable, in which a transparent oily substance is enclosed. Apart from these nerve tubes, Kolliker and others have also discovered nerve knots (ganglions) so that for the time being it would be heretical if anyone were to say that the nerve substance could adopt not only the form of tubes and knots and twined knots but *any desired form,* because this has not yet been proven by the microscope. An anatomist who works with a microscope would rather be killed than admit that *muscle* substance is also transformed nerve substance although the nerve actually turns into muscle while the nerve fat chemically unites with groups of cyanogen which, of course, cannot be seen through a microscope.

This wonderful transformation ability is based on the fact that the nerve substance *lives an independent life,* which even continues for a time after it has been separated from the organism and which must be attributed to its *phosphate* content.

We get an idea of the independent life of the nerve substance when we kill a rabbit and after 12 hours shave off a little mucous membrane from its respiratory tubes. Under the microscope we can see a forward and backward movement of the fine fibers in which the breathing nerve coming from the brain radiates in the mucous membrane. If the experiment is made too soon after the rabbit is killed the occurrence is not clear enough because the vibrations are then so lively that the rapid succession blurs our eyes so we cannot distinguish any movement clearly. The following explanation will help us to understand the process:

In certain parts of our organism the last fine tips of the nerve substance end in the finest of fine threads. Those threadlets which lead into the muscle flesh can no longer be distinguished even with the strongest magnifying glass because the original fiber bundles and the so-called axis cylinders have been transformed into muscle substance, in the same way that leaf nerves extend into the parenchyma. In spite of what the eye sees, the muscle flesh nevertheless contains nerve substance as proved by the tailor muscle (sartorius) of the thigh as well as other muscles. According to anatomists, its endings are free of any trace of nerve, yet they react to mechanical excitements thereby revealing the presence of electric nerve substance.

At other places in our body, namely in the *cavities,* the nerve endings are completely visible and show a hairy crown. These crowns consisting of hair-fine threads must be considered as a direct radiation from our brain and spinal cord but histologists, because they do not understand the connection, call them *glimmer* cells or hairy cylinder ephithelium.

The nerves of the five senses, sight, hearing, smell, taste and touch, all end in a serous membrane in which their fine threads oscillate snake-like, interweave like snakes and move their hairy crowns ceaselessly back and forth. Such radiating vibration is caused by *electricity* which is the *mother* of all motion. The entire peritoneum which wraps up the renewal organs, stomach, intestines, spleen, liver, pancreas, kidneys and germ glands, is specific nerve material woven together

out of the vagus nerve and the sympathetic plexus radiating from the spinal cord.

The vibrating tips of the *vagus nerve* begin at the base of the larynx cover, envelop the entire larynx head with the exception of the lower cartilage vocal cords, and all the wind pipes up to the very thinnest ramifications of the lungs. The paralyzed condition of these vital nerve tips *cannot* be recognized by a laryngoscope.

The *olfactory nerve* also shows the vibrations of its last ramifications up to the beginning of the nose cartilage. In the *optic nerve* the hairy nerve endings appear as exceptionally tender filaments in the ganglion layer of the retina which becomes sensitive to light as a result of right-angle expansion, therefore polarization of the nerve substance, and in this way makes seeing possible. The *auditory nerve* also shows the same arrangement of a hair-like splitting of its final substance in the extreme spiral-like furrow of the cochlea.

All these nerve endings can become paralyzed by over-taxation of their capacity or can become deadened or be disturbed in their formation and growth, as in those born blind, deaf or dumb, or in those born without the senses of taste and smell. But it is a consolation that the lack of life in one nerve is compensated for by greater developement in another.

In insects the vibrating nerve fibers are incomparably more strongly marked than in human beings. Much of which, on account of its hair-like form, we describe as *hairs* on insects is direct nerve substance. Certain kinds of insects are completely wrapped in such a vibrating nerve-tip coat making them sensitive over their entire body surface. Since they are pure life and pure nerve, all singing birds hunt for them to obtain fresh life.

Only crayfish and snails have *no* vibrating nerve tips *in any part* of their bodies.

In normal persons the central cavities of the brain and spinal cord contain these vibrating nerve endings — in women also the ovulation tubes and the womb, in men the vas deferens.

The nerve substance of mammals vibrates in all its poles, on the *outer* as well as on the *inner* surface, according to the nature of electricity which spreads *over* the *surface and reaches in the distance.* It reaches for expansion, strives to *grow* and grows *incessantly*. Now what happens to the *grown substance?* It pulls along the material in its vicinity as much as possible and *ceaselessly speeds on while indicating the direction.* The pappi are continuously flung away like the pappi of the dandelion *(Leontodon taraxacum).* The ever newly-growing nerve fibrils split incessantly into hairy crowns which constantly tear off, constantly transform into mucus and make way for new additional material. Herein lies the definition of *mucous membrane.*

The mucous membrane of the inner *cavities* (eyes, ears, breathing, intestinal and procreation organs) by coherent union passes over into the mucous membrane of the *outer* bodies which are protected by a cover of cyanide compounds (elastic connective tissue) and leucine scales (top skin layer). Such passing over to the outer substance takes place via all natural openings in our body, such as the eyelids, the nostrils, the mouth cavity, the anus, the bladder and urine tubes, and the vagina.

The oscillating vibrations of the split fibers of our nerve ends in normal creatures are so numerous within one second that they cannot be counted. The eye becomes bewildered! Only when the nervous system has been artificially deadened are the vibrations slow enough that the eye can follow and thoughtfully count them.

The smaller the creature, the more lively the vibrations of the nervous system, the more quickly does the mind with its vibrations grasp outside impressions, the more correct is its judgement, the more certain and objective its conclusion. A mouse in a wire trap so rapidly examines the spaces between the wires for possible escape that our eyes are hardly able to follow the movements. A squirrel moves so nimbly over the spokes of its rotating cage wheel, then back to the cage, again on the wheel and again to its little house, that we would consider such speed a *sickness* if we did not know that it is part of its nature. Physiologists say that faster

blood circulation, and more frequent *heart beats,* are the cause. This is quite correct. And what causes the faster heart beats? It is the more lively nerve vibration because the *heart* is woven out of pure nerve threads. A singing bird also sees, judges and decides as fast as lightning. In no time it has snatched a small gnat. And how fast its little heart pounds when we hold the small bird in our hands. Therefore, once more: The smaller the creature, the *finer* and more superior its sense, that is, its entire nervous system.

Small women, who are usually gifted with fine feelings, have to put up with the opinion of some stupid physiologists who describe the female sex as mentally inferior, sickly nervous, highly strung, hysterical, etc. The nervous system also grows and functions livelier, the *younger* the organism. Because the hairy crowns of the nerve tips reach into the ears, into the nasal passages and into the eyes, explains why they can be affected by sweet sound, intoxicating scent and captivating shape, thus increasing their vibrations.

From this we can understand how the views of young people can become blurred from confusion of youthful vibrating nerve ends. It is not by chance that the natural instinct and the experiences of people in this regard are expressed in the saying: "Love is blind!" There are times when the sex pole vibrates so lively that everything else is influenced by it.

The steady growth and renewal of the nerve tips, creating new mucous membrane, last so long as the organism maintains its electricity and by deep breathing and suitable nutrition renews its nerve material. In some places of the body this process is more discernible than at others, in particular in the *stomach.* Without such constant *rebirth* of the stomach lining there is no health because everything else depends on it. The constant fermenting decomposition of the stomach nerve mucous membrane creates the essential impulse for the uninterrupted rejuvenation of the entire organism. The *fermentation* of the stomach, including its nerve and blood material, is the effective moving force of the entire gearing of our body machine.

According to the organ and its specific function, the fibrils of the nerve ends appear in various forms. Not everywhere do they have hairy pappus crowns, in some places they are thickened, club-like and compressed, in other places they are branched like a tree crown (duodenum), and in still other places they are formed like a bunch of grapes (salivary glands and lung alveoli).

The nerve substance is exceptionally *pliant* or subject to *metarmorphosis,* not surprising for a substance whose inherent character is mobility. When different chemical split products of the nerve substance or blood material are required, then it becomes noticeable in the bends of the nerve substance which takes on a changed direction and *form.* In the newly-born the various nerve forms only gradually develop in the measure in which they are required, as a result of the oxidizing effect of the inhaled oxygen — like the wings of a butterfly coming up out of the cocoon. At first no lung alveoli are present but they develop immediately after birth. After 24 hours stomach and intestinal glands also develop which were *not* present until then. The nerve-tip phosphates shoot up like mushrooms in only 24 hours.

But in dead bodies which have been deprived of electricity this cannot be recognized with a knife and microscope since nothing moves any longer. That is why anatomists do not see the forest for the trees. The fringed ephitelium lining the brain cavities and the central tube of the spinal cord is lively brain substance which also cannot be recognized with a knife and microscope. It may be the opinion that it is a *good* method not to recognize the glands in the eyelid cartilage as transformed nerves and remove them with tweezers in order to cure them when weak blood causes a sickness of these glands. But do we also cure a sick *heart* and a sick *lung* by extraction? We carry on without *chemistry* and instead yield to the use of the knife, submitting to the Darwin philosophy: survival of the fittest.

As an example, it is absolutely impossible to understand the function of our *lungs* and *kidneys* from the moment they are laid next to one another on the dissection table. The connecting tie is missing

which makes them appear like *sisters*. Lungs and kidneys are two opposite, yet complementing and uniting poles. To illustrate this: The most important function of the lungs is to extract the combustion product *carbon dioxide* from the blood. The kidneys, on the other hand, remove the *urea* from the blood. It is very unfortunate when the *reverse* condition sets in — when in the kidney blood the paralyzing carbon dioxide predominates while the urea putrifies the lungs. And, alas, nothing happens so easily as this conversion. All it requires is a suppression of the oxygen inhalation.

How is such a conversion possible? This can only be explained by the equivalence of force. From crystals we have learned that the changed *direction* is also a form which hides a force equivalent with the result that 1) the lungs and kidneys clearly show opposite direction in the most varying respects, and 2) from the lungs the gaseous substances and from the kidneys the crystallizable substances (including the urea) are secreted.

Let us first discuss the *direction!* In the heart which is placed in the middle between the lungs, the electrical blood stream divides into two halves. We must recognize the partition of the heart into a left and right half, it is the equivalence for the oxidizing force of the lung breathing. This is proven by the fact that the aquatic animals, provided with scales, therefore with an airtight skin as in fish and scale amphibia, do *not* have two heart chambers like the mammals and birds, but have only one heart cavity.

The separation of the heart into two halves occurs in the newly-born right after its first breath. As long as the child is in its mother's womb the membranes which divide the heart into two halves have not yet shifted over one another, so that before the birth *similar* blood exists in the arteries and in the veins. After birth the exterior cooling-off effects a contraction of the umbilical cord and of the abdominal cavity which result in leading the blood towards the upper body. The blood rises into the lungs where carbon dioxide is exhaled since the prior way (through the umbilical cord) is blocked. Now the exhalation of the carbon dioxide from the unfolding lung alveoli brings forth the first rattling sounds, and this is followed by the inhalation of oxygen. The thus oxidized blood returns to the heart through two right and two left lung veins which in a straight line of 180^0 enters the ventricle of the left half of the heart. (Such different directions of 45^0, 90^0 and 180^0 are of essential physiological significance.)

Now when the newborn's first lung blood returns to the heart suddenly blood of two different constitutions is present, one charged with carbon dioxide and one charged with oxygen. The first contains the carbon dioxide in gaseous form and is therefore specifically lighter than the lung blood whose oxygen is chemically bound. (Oxygen makes bodies *heavy* and phlegmatic.) Consequently, the entering heavy blood endeavors to displace the lighter and to conquer half the space. From this moment on there are two separated halves of the heart whereby the oval opening through which the halves previously communicated now forms a closing membrane as a result of the chemical effect of the lung blood. This is how normal *blood circulation* begins to function as a result of which *carbon dioxide* is segregated in the lungs, whereas in the kidneys (where the arteries also form a straight line), ammonium phosphate, oxalate, sulfate and urate as well as urea are secreted. The salty components of the blood naturally *sink downward* whereas the gaseous parts rise *upward;* but there is a further point to be observed which is that the kidneys are related to the lungs as to their other *poles*.

Not only do the kidneys lie at the base of the lungs on the same meridian, but kidneys and lungs are completely connected by kidney capsules, peritoneum, diaphragm and plurea. The same applies to the spleen as to the important kidney capsules. In reality the kidneys form a connecting bridge between diaphragm, liver, pancreas, spleen and stomach, which cannot be discerned with a microscope.

Urea provides an understanding of the connection between kidneys and lungs. What actually is this special substance, urea? Is it something poisonous or un-

appetizing? Where does it come from? How does it originate in our blood? What is its nature, its purpose, its character, its meaning? The *name* should not disturb us. It is badly chosen and does not describe what it should. The most beautiful pure blood of the healthiest person contains urea as well as common salt; and urea is no less appetizing than common salt. Urea is an ever-present companion of animal nerve function; it signifies achievement of work, electro-chemical separation.

The ways urea is created are most manifold. It is present, although not in pure form, in caffeine, theobromine, xanthine, guanine, creatine, allantoin and ammonium urate, therefore also in muscle flesh and can be produced by numerous chemical methods without the use of any flesh substance. In animal bodies (mammals, birds and amphibii) it is liberated from the flesh substance in which it is contained by chemical union, by the oxidizing effect of oxygen-containing blood.

FURTHER METAMORPHOSES: FROM PLANT SUBSTANCE INTO ANIMAL SUBSTANCE

As urea arose as a separation product out of ammonium carbonate, we should reconsider this *second* source of urea in our blood if we wish to understand how plant substance can be transformed into animal protoplasm *without* the assistance of an animal body, because in urea we must recognize a kind of foundation for animal flesh.

When recognizing urea as a separation product of ammonium carbonate, we must remember that certain substances only unite when a third factor also plays a part. When an oil-forming hydrocarbon e. g., alcohol or sugar, as in the vinegar eellets and vinegar gnats) unites two parts ammonium carbonate, then two parts *gelatine sugar* result. Here it should be noted that the character of *pairing* is an obvious phenomenon of compelling validity for all unpaired elements, such as for ammonia NHHH and for the threefold hydrocarbons allylene $C_3 H_4$, propylene $C_3 H_6$, propionic acid $C_3 H_6 OO$, amylene $C_5 H_{10}$, etc. We can therefore recognize that the gelatine sugar in muscle flesh and in connective tissue exists *in pairs,* the more so since all chemical decomposition products of the flesh indicate this.

Under such circumstances 2 molecules ammonium carbonate would be liberated from 2 gelatine sugar after the connecting ethylene CC H_4 has been oxidized into carbon dioxide and water by the oxygen of the capillary arteries. Since in such liberation of ammonium carbonate from chemical compounds *electricity* is also liberated — on account of the transition into a new form (namely into gaseous form) — it is not possible for 2 ammonium carbonates to be liberated. On the contrary, the newly-born electricity immediately effects a *change of direction* while it splits the 2 ammonium carbonates into three parts: carbon dioxide, water and urea, and disperses these substances into different directions.

The carbon dioxide and the water vapor are caried to the *lungs,* the urea to the *kidneys.* This takes place after the vibration of the gaseous ammonium carbonate becomes polarized due to its ability to crystallize, since the urea crystallizes in very pretty, perfectly odorless rhombic needles. Thus a certain part of urea, leaving the body through the *kidney* arteries, is a product of reverse-working electricity and it corresponds to a certain part of the carbon dioxide exhaled by the *lungs* from the blood. This explains that a far greater amount of carbon dioxide is exhaled than the quantity of oxygen inhaled, something the physiologists have been unable to explain so far.

Therefore through the influence of the electric sun power, we also can obtain animal urea united with oil when this separates water and carbon dioxide from the *plant* gelatine, or simply separates from a compound of ammonium carbonate with oil. This explains how plant substance and animal flesh substance can transform one into the other by the simple means of shifting water and oxygen, meaning that a deer, a horse, a reindeer,

a sheep or a cow can develop flesh from grass, herbs and bark and the human being can do this from grain and fruit. So it is natural that the reverse is true, that the addition of water and earths to animal substances is able to produce new plant growth.

Equally correct are two more consequences, namely: 1) that out of the superfluous juices of *larger* plants, smaller plants can be created, and 2) that smaller animals can originate from superfluous fluids of *larger* animals. Finally, it must be taken into account that in primeval times the larger animals were created from the *concentrated* substance which was essentially based on oil substance floating on top of salt-holding water, whereas the plants were created by the effect of the primeval sun power on the *diluted* solution which penetrated into the loose mountain rubble.

For these processes let me now clear up the very simple chemical and physical relationships, illustrating them by means of easily understandable examples and at the same time referring to the findings of chemical, anatomical and physiological tests where needed. Let us begin with the *metamorphosis* of plant substance into animal body substance without the help of animals.

Assuming that a six-rayed star of 6 rhombus-shaped sugar molecules fills up the gaps at its periphery by 12 ammonia and, further, chemically binds 6 atoms oxygen, then the 12 ammonia with their hydrogen edges would take up symmetrical position near the carbon dioxides of the 6 sugar molecules; yet the 6 oxygen would join the hydrocarbons of the 6 sugar groups. This is required by symmetry. Since 12 plus 6 chemical unions take place, a total of 18 molecules water must be separated as equivalent for the chemical condensation.

If, then, the remainder of the substances regroups according to the law of symmetry and in this connection we take into account the wandering ability of hydrocarbon, a group results which contains the elements of 4 leucine, 2 uric acid and 2 carbon dioxide.

$6(C_6\ H_{12}\ O_6)$, 12 NHHH, 6 O—18 HHO = $4(C_6\ H_{13}\ NOO)$, $2(C_5\ H_4\ N_4\ O_3;\ COO)$

If such a group comes into contact with calcium phosphate and watery moisture, according to the laws of chemistry the calcium phosphate will enter into the large group by union with COO CHH, NHHH; and this supplies *animal* protoplasm because ammonium phosphate is now chemically united to the oil substance of leucine, which produces the muscle flesh. As soon as this group arrives in the warmth of electrolytical processes by separation of phosphine PHHH and as soon as the latter absorbs oxygen, a live animal germ is created.

Sweet-scenting hay contains sugar, plant protein, calcium phosphate and also air because atmospheric air clings to the surfaces of dry objects with such energy that the manufacturers of thermometers, for example have to *boil* the glass tubes which contain the mercury, as well as the mercury itself, for a long time in order to expel the last remains of air clinging in condensed form to the walls of the tubes.

Thus, in spite of the disagreements of many experts, von Ehrenberg was fully correct in describing the small infusion animals which are obtained by steeping hay for what they are: that is, primeval created *beings*. The quantities of substance obtained are too small to create whales; under more favorable conditions the originally created animals are larger if richer material is supplied. Then fat maggots, worms and beetles of considerable size originate. The substance must, however, have *scent,* otherwise animal protoplasm cannot originate. The substance must vibrate. When the hay no longer smells, *no more* infusion animals originate.

Leucine, the Proteus Substance. We return again and again to *leucine* as the general supplier of scent and form — this Proteus who gave us the five-needle Weymouth pine *(Pinus strobus)* from the Gulf of Mexico, the leucine coal of Cumberland and Northumberland, the crude oil of Shropshire and in union with tyrosine, the anthracite coal in South Wales and the brown coal in Devonshire.

Without the stream which flowed from the Gulf of Mexico past Trinidad to the Canary Islands, flooding Spain, France and Great Britain, inasmuch as these

countries were covered by water, there would have been no coal, brown coal or iron in Spain, France, England, Scotland, Ireland and Germany because coal, iron ore and limestone do not appear together *incidentally* but according to chemical *law*. This is because the *ammonium* carbonate of the putrefying urea precipitated successively the iron, the calcium and the clay, the latter of which has transformed a significant part of leucine and ammoniacal tyrosine into fossil coal. Leucine and tyrosine-ammonia together with ammonium carbonate wandered from the places where they had originated through putrefaction — that is, out of the China Sea, the Bay of Bengal, Arabia, Guinea and out of the Gulf of Mexico — to all regions to which the warm equatorial stream carried them.

Even today *leucine* is still *creative*, bringing forth small beings as soon as phosphate is added, the same as 5,000 years ago it created large beings. With such knowledge we stand on the threshold of a new evolution which, if we step over and walk, will make us richer in resources of earthly blissfulness, richer in protection against spiritual, physical and material loss. We become freer from error and darkness than the Greeks and Romans, the Poenicians and Egyptians, the Hebrews and Chinese ever were. It will pay us to obtain a truly clear conception of the magic powers which are hidden in the satin-like leucine.

It seems of particular importance to study the position of the individual atoms in the group pertaining to leucine as they are shown in the attached "Table of Figures Page 3". This is a brief review of the structure as clear as it is posible to put in print:

HH
HCH
HCCH
HCCH
HCH
OO
HH
N
H

Leucine
$C_6 H_{13} NO_2$

Leucine $C_6 H_{13} NO_2$

This wonderful substance, leucine, which carries the germ of all animal and plant protoplasm provided that phosphate, sulfate, chloride and carbonate earths are added, cannot be studied thoroughly enough. Chemists should examine leucine instead of devoting so much time to aniline color manufacture because it is vital to nutrition and is the indispensable foundation for explaining all the processes of life.

Leucine is a hexagon consisting of 6 triangles CHH CHH CHH CHH CHH COO to which a seventh triangle of ammonia is chemically attached like the basket of an air balloon. The ammonia with the heavy carbon dioxide often flies away independently. Upon this circumstance depends the egg formation of warm-blooded animals. On the other hand, the creation of urea from leucine can be explained by the oxidation of the 5 hydrocarbons which liberates the ammonium carbonate. By the simultaneously-appearing electricity, *two* adjoining groups are split into water, carbon dioxide and urea.

From the group formation in the leucine molecule we can see that 6 carbons join together in the center of the hexagon and that the ammonia NHHH, of which one edge consisting of 2 hydrogen HH is chemically united to the edge of carbon dioxide consisting of 2 oxygen OO. Such grouping is conditioned by the law of opposition and the driving force of hydrogen and oxygen to unite as well as by symmetry.

It must yet be confirmed that the 2 oxygen stand in chemical union between 4 hydrogen and therefore occupy no space. The place of the destroyed oxygen space is occupied by ammonia, as in chemical unions ammonia fills the space of but half a triangle provided that heat or other force equivalents do not act upon it. In case heat or force is applied, the ammonia in the leucine group would vibrate between the space of one or two triangles thereby creating mechanical movements, so proving that it possesses elastic properties.

Independently and in cold atmosphere, leucine forms a *hexagon* and the hexagonal leucine molecule scale forms a *building stone* which, by joining similar

stones, produces a part of our body tissue. Although anatomists do not deny the hexagonal and extremely regular form, they do claim that it is an exceedingly adventurous conception that nature has formed such a thing and believe "these polygonal figures have been created by reciprocal pressure". This, then, is less adventurous: that pressure achieves more than the Almight God!

Even the finest infusoria, which can stand no pressure and on which no pressure is exerted, reveal this beautiful hexagonal form in their tissue under the microscope. The same applies to the pigment layer of the retina of our eye on which no pressure at all is exerted. Further, in most beautiful perfection the gelatine substance, the basis of our tooth enamel, forms fortress-like walls which surround the sensitive nerve, *protecting* it from pressure. The wall protecting the radiation of the hearing nerve also consists of faultless hexagon. And the entire skin of our body consists of these fine leucine scales which continuously scale from our body and just as continuously, are produced anew from the layer of fat under the skin by the ammonium carbonate formed from the urea by the sweat glands.

As soon as leucine unites with calcium phosphate it can adopt any suitable form. Therefore, our phosphate-containing bone tissue and our brain tissue resemble the polypii stretching out numerous tentacles in hundreds of directions.

As quietly as the calcium phosphate lies when left by itself and as lifeless as the leucine is in dry condition, yet both become magically alive when they are united and moistened with water. Reciprocal *procreation* takes place because they both supply liquid protoplasm so that near bones under the influence of blood heat, mite-like creatures can be produced out of the leucine scales of the human skin (itching mites, head lice, etc.).

As a result of the striking similarity between the leucine scale-ephitelium and the hexagonal form of the bee cell, the scales were incorrectly assumed to consist of cells, whereas they are not cells but only scales. Once set in motion it was proclaimed that the entire animal body consisted of single "cells" even in cases when there was not the slightest similarity to cells. The completely structurless leucine-containing synovial fluids of the joints were ignored. Cells, nothing but cells! And the experts pronounced the following:

"Our anatomical knowledge will bring us no further than these cells. This is the last frontier; everything stops here; this is the limit and end of our knowledge. This of course, also explains, i. e., when the organism gets sick we must look for the origin in the *cells:* the cells are the *first* to become sick; they are in a pathological state".

In contrast to the aforesaid metamorphoses a weekly American newsmagazine reported on June 30 1967 under the heading: "Surgical worming" Schistosomes: Parasitic worms affecting some 200 million people in Latin America, Africa and Asia. Caused by parasitic blood flukes, it is found around marshy deltas, sewage-contaminated lakes and irrigation ditches, where the larvae of the worms lodge in snails and flourish. Invading the human body through the skin, the larvae head for the liver, there mature into flukes that migrate to the small veins of the bowel, where the female lays innumerable eggs every day, sometimes for years. Many eggs are swept into the liver and other organs. They cause irritation and scarring in the liver (which leads to enlargement of the spleen), intestinal damage, bleeding from the esophagus, stunting of growth, anemia and blood in the urine".

"Now two University Drs., specialists in tropical medicine and surgery have devised a method to remove most of the flukes. They reasoned when a patient is cut open to have his spleen removed, he might as well be rid of the flukes at the same time. They designed a system of tubes to pipe the blood from the vein entering the patients liver, pumping it through a filter and returning it to a vein in the leg. In order to lure the flukes out of their customary leirs in the intestinal veins, they give patients a single injection of tartar emetic. The flukes which find the emetic as unpleasant as most human beings do, come scurrying out into the main blood stream and are shunted through

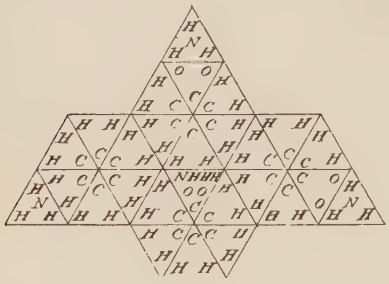
the tubes. Since they are about half an inch long, they are stopped and trapped by the filter, while the blood passes through unharmed".

"Reporting to the A.M.A. on the results of the first 20 applications of the technique on schistosomiasis victims in Brazil, Dr. K. said as many as 1,668 worms had been filtered from the blood of a single patient. The patients had been excreting thousands of eggs a day after the operation. Though it was developed for the fluke Schistosomes mansomi, common in South America and Africa, it is believed that the technique can be adapted to remove both the Asiatic form, which causes an even more severe disease and a variety that is common in the Near East and exposes Africans to double jeopardy".

"Ignorance is the worst enemy of mankind". So get a better understanding of the chemical functions of life, it is the *foundation and essence of all knowledge,* as taught by Julius Hensel. Then you will KNOW HOW TO PREVENT DISEASES with their high cost and loss of time and money. (Ed.)

Products of Leucine

We shall now go further and study the transparent hexagonal leucine scales, this miraculous composition of groups containing a whole world of possibilities for chemical union.



Group of 4 leucine

These leucine scales move together in such a way as to form a mosaic layer held together by the force of electricity which we know emits from the body surfaces. Thus is formed the fat and skin of seals and the tender skin of a newly-born human being as well as the covering smegma fat and the ammonium membrane. Instead of studying the entire mosaic layer we shall first examine only a small symmetric piece.

When one leucine is chemically united with its middle hydrocarbon to the ammonia edge of another leucine and when into both gaps, to the right and to the left, two additional leucine find symmetrical union with their hydrocarbon edges, then through splitting of one of such fourfold leucine groups all possible so-called amino bases can result: methylamine CHH NHHH, dimethylamine, trimethylamine, ethylamine, propylamine, butylamine, methyl-ethyl-amylamine and whatever else you wish. (See Table of Figures, Page 11.) It only depends at what place the chemical splitting takes place.

Naturally, the leucine building stone can again be separated, intact and unbroken, from the flesh substance. This is what occurs, for example, during digestion in the stomach, during natural decay, in lung consumption where electricity is lacking, in old cheese, etc.

The natural leucine scale which crumbles away intact from our *skin*, caused by the electricity which issues continuously from the body surface, is the little scale we know as epidermis that is removed by washing with soap and water, or, from the head skin, by combing. Such voluntary separation of the leucine scale is by no means to be considered as a decaying process, but must be compared to the sparks we see in electric light when small particles of carbon are mechanically torn away by the electric current.

The regular loss of our leucine scales is caused by the constant formation of new scales out of the blood and lymphatic substance, thanks specifically to our body electricity. In certain cases when stagnation sets in because the electric tension is modified, the leucine scales gather together at certain spots similar to crocodile armor. Present-day medicine considers such a condition (psoriasis) to be a *skin* disease caused by fungi, whereas it is simply caused by amphibian (cold) blood, that is, by blood lacking magnetic power and rapid circulation so that its degree of warmth and the strength of its induction current which it supplies to the ends of the nerve bundles are insufficient. In other words, scale herpes is the result of faulty nourishment and way of living and cannot be cured merely by smearing the skin with ointment, but only by sensible *diet, bathing* and activity in the *fresh air*.

Such metamorphosis of leucine into leather scales is conditioned by the adherence of ammonium carbonate. When the skin is normal, electrically alive, much more ammonium carbonate is *perspired*, and the hydrocarbons of the leucine which collect into fatty oil because they oxidize, remain behind. Perspiring ammonium carbonate out of the *active* skin is of such importance that every doctor should be convinced of this fact. To demonstrate this, immediately after rising and before washing oneself, put the glass top of a flask of hydrochloric acid on the back of the hand — the characteristic vapors of sal ammoniac will not be visible. If however, the experiment is repeated after washing and drying the hands the most beautiful haze of sal am-

moniac arises. This is sufficient proof of the value of cleansing our skin to keep us electrically alert.

After this introduction, the following phenomena come into proper focus:

1) An equivalent of physical *activity* is water and blood salts which chemically split off in the muscles and penetrate the skin in the form of sweat. Simultaneously with the sweat the separation products of leucine tissue, such as propylamine, butylamine, capronamine, caprinamine and caprylamine, appear in the form of all kinds of fat substances which give off a variety of scents. Quite a different condition exists in an *inactive* body during sickness. The odor coming from a sick skin is essentially different from that of a healthy one; for example, during scarlet fever, measles, etc., the odor of decaying herring (trimethylamine) occurs, although a freshly caught herring does not smell like this. Such trimethylamine indicates a decomposition of tissue which has been *deprived of electricity*.

2) The stench compound indole $C_2 H_2$, $C_6 H_2$, NHHH (see Table of Figures, Page 13) even develops from the skin of many people. In the hot season, corpses also develop such an indole water closet stench, and this has a magical attraction for flies.

3) The leucine scales of the scalp, particularly of children, are subject to a lively crumbling away and renewal, in part producing decomposition and smell. Since the nerve ends in the scalp skin burn into carbon dioxide and ammonium phosphate through the oxygen of the capillaries, the head sweat of children who are not frequently washed with soap causes the creation of head lice. Adults who as well do not have the opportunity of bathing, washing and combing create these parasites. No soldier who was in military service in 1870 was without lice with the exception of a few who rubbed themselves with anise oil composed of anise aldehyde which consumes the germ-awakening oxygen. The descendants of our primeval mothers in the Caucacus were also heavily covered with lice. This was told to me by an engineer who assisted in building the Poti-Tiflis railway.

At other parts of our body *other* animal forms are created, such as fleas and itching mites in the armpits and other hairy surfaces, and crab lice in the eyebrows. The lice disease of dissolute individuals is no fiction either; the sweat of such people changes into independent animal protoplasm.

4) The comedones during puberty of both sexes are nothing but a copious accumulation of tallow originating from the leucine scales lining the walls of the skin openings for the hair. Since the hair follicles are used by the radiating body electricity as a natural roadway, or, let us say, because the hair originates in this manner, the ammonium carbonate of the leucine together with the electricity, escape around ther hairy parts of the body and a tallow substance remains behind which partly clings to the hair and gives it its natural luster. If, however, such an accumulation of tallow as well as leucine exceeds a certain amount and experiences a chemical change of place with the calcium phosphate of the facial bones resulting in ammonium phosphate, then suddenly lively follicle mites *(Demodex folliculorum)* originate from the formerly lifeless substance. These become noticeable by itching and if we did not kill these pests by instinctive scratching or by another method, we would be sure to see fur moths grow out of our skin.

These mites prove two facts: a) that the form of a creature depends upon the curvature of the surrounding wall, such as the ergot fungus nestling in the node linings of grain spikes, and b) that parasites actually originate from animal secretion without the presence of mother animals, because hair mites do indeed live only in the hair glands and do not fly about in the air, so they have no occasion to lay eggs in the human hair glands. It is further interesting to note that such comedones prefer to arise during puberty, that is, while there is an abundance of juices and the beard is being germinated. They usually disappear after marriage.

Dozens of these parasites can be found in one hair gland of dogs that are neither washed nor combed. Such a dog will die if he is completely covered by scurf through constant scratching and is not

washed with an alkali soap.

Clothes and fur moths also come under this heading. These definitely do not, as many believe, *get into* woolen and fur articles but they *come out* of them. The animal hair sheath *itself* consists of leucine and the ashes of the hair contain calcium phosphate. This provides all conditions necessary to produce parasites provided the grouping of the hydrocarbons into nerve tallow is not disturbed by shaking or beating the garment.

5) The leucine layers covering the *inner* organs, being subject to constant loss and renewal, also form a favourable spot for the production of parasites because, due to insufficient physical movement, the secretion substances remain where they are produced instead of being consumed in the normal manner. In such cases the hairy ends of the nerve fibers terminating in the digestive tract, in the central cavities of the brain, in the liver cells, etc., form the natural crystallization points to which the dispensable secretion material clings. This is similar to alga substance created on calcium carbonate rock which spins long threads over the water-covered, sun-clad earth. Also, the hack crown appears with which a tapeworm is attached to the ephithelial thread of our intestinal nerve mucous skin which seems to be a direct appendage to the intestinal nerve ends to which indole and bile substance have attached themselves in a quite similar manner, like the link chains of the alga threads on sweet water rock and the seaweed on sea rock.

Consequently, the detachment of the hack crown — since it is *identical* to the nerve ends — is the main object of the tapeworm cure and will succeed with the aid of certain oil substances (castor oil and fern oil) which chemically dissolve the fine nerve threads. If once the breaking away is accomplished by such a method, re-attachment of the hack crown will not be possible again while the crown and the entire so-called worm are not individually independent. It is true that the worm will periodically still show snake-like motion after it has been expelled from the intestinal tract, but such periodic movement is also still visible in the intestines after an animal has been killed, also the heart still moves after it has been removed and placed on a metal plate. Such motion is still visible in the ephithelium as well, in fact, in all nerve substance after it has been removed from the body, as for example the hip nerve of a severed frog leg. The tapeworm should be considered as a hypertropic, metamorphosed, intestinal gland, like the hair mite is a metamorphosed tallow gland and the grain ergot fungus is a metamorphosed cereal grain.

As the tapeworm's long shape is determined by the long intestinal tract, so the other intestinal worms adopt a specific form coresponding to their location. Even scientists are led astray by fabulous stories of their colleagues. In 1884, I was told that in Iceland no one dared to swallow any water for fear of liver leech, as both man and animal there suffered from this pest. The reasons given for this were: a) it is a known fact that sheep are infected with liver leech, b) dogs drink water from the same source as the sheep, c) the dogs infect human beings with the liver leech. Wonderful logic! Like in a fairy tale.

In reality, the liver leech is created because sheep, dog and man are subjected to similar conditions, inhaling stale stable and room air of which the carbon dioxide has a paralyzing and overheating effect on the nerve functions of the liver gland. The raw air which blows almost constantly over Iceland regrettably does not permit windows and stable doors to be opened as often as would be wholesome for health. And this along with a poor standard of nutrition causes the epidemic diseases occuring regularly in Iceland whenever the population concentrates in only a few locations, reaching a certain density of population. Enough for the present about this type of parasitic creature.

Thanks to the hexagonal form of leucine it is not difficult to imagine that chains of leucine groups in inconceivable numbers welded together in the sun heat of the Arabian, Bengal, African and Mexican bays, followed the sea current and entered into chemical union wherever they came into contact with phosphate, sulfate and carbonate of calcium, potash,

soda, magnesia and manganese as well as iron, silica and calcium fluoride which bordered the bays in the form of mountain debris.

In such a way any protoplasm could be formed.

There is no plant or fat acid imaginable, no resin or balm substance, no ethers, fats or oils, no gums or sugars, no rubber or wax, no plant color nor any kind of scent, neither any animal substance which could not have been composed out of such universal substance. Even the submerged, spherical-shaping tyrosine forming the anthracite of Pennsylvania, England and East India could come into existence from leucine because 4 leucine supply the substance for tyrosine $C_9 H_{11} NO_3$, 4 water $H_8 O_4$, 3 ammonia $N_3 H_9$ and copaiba balm oil $C_{15} H_{24}$; and also the belladonna substance, atropine $C_{17} H_{23} NO_3$ (= $C_9 H_{11} NO_3$ + $C_8 H_{12}$), and 1 hydrocyanic acid CNH, 5 water $H_{10} O_5$ and 2 propylamine of $C_3 H_6$ NHHH each.

As flies could originate from refuse, belladonna *(Atropa belladonna)* or poisonous nightshade *(Solanum nigrim)* could likewise originate from root juices of the copaiba tree by substance displacement. This actually still takes place in resinous fir trees, a fact known by every forester. From the stumps of forest conifers which have been cut down with saw and axe, masses of belladonna grow *without having been sown.*

Among the split products the *scent-producing* ones are those which also create the *form.*

Allyl $C_3 H_4$, detachable from leucine and which shows first of all the unsaturated aldehyde character, immediately polarizes itself into the diallyl oil of plants of the onion family, which is then recognizable in the 6-leafed calyx and the 6 stamens showing the doubling of the threefold hydrocarbons, whereas the original basic number 3 again appears in its 3-sectioned capsule fruit.

In contrast to this, the paired, fivefold hydrocarbon, carven $2(C_5 H_8)$, appears in umbelliferous plants as 5 calyx leaves, 5 corolla (petals) and 5 stamens. The *duplication* becomes visible in 2 pistils and 2 mericarpels. Every mericarpel again has 5 stripes or ribs in between which the oil glands are located.

The related turpentine-oil hydrocarbon $2(C_5 H_8)$ shows up distinctly in the Weymouth pine *(Pinus strobus)* in the form of a leaf bundle of 5 needles. The united 2 hydrocarbons, allyl $C_3 H_4$ and ethyl $C_2 H_4$, as $C_5 H_8$, also form the basis of the resin of the thuja tree, for we get thuja resin if we chemically dehydrate and unite acetone and pure alcohol by means of sodium metal.

Other scents originate when bitter almond oil, which is combined with gelatine sugar in tyrosine, is involved, as it contributes to the creation of deviating shapes in the growth process. I obtained the scent substance anethol $C_{10} H_{12} O$ found in dill seed *(Anethum graveolens)* when I dissolved bitter almond oil $C_7 H_6 O$ and acetone $C_3 H_6 O$ in water, mixed this solution with diluted sulfuric acid and exposed the mixture to summer temperature. Then, simultaneously, I obtained benzoic acid $C_7 H_6 O_2$ and propionic acid $C_3 H_6 O_2$. This makes it clear that by the shifting back and forth of the passive oxygen, deviating shapes with deviating properties result provided that intermediary electrifying substance is present. In this case, for instance, it is sulfuric acid.

$C_7 H_6 O, C_7 H_6 O, C_3 H_6 O$
$= C_7 H_6 O_2, C_{10} H_{12} O$

$C_7 H_6 O, C_3 H_6 O, C_3 H_6 O$
$= C_3 H_6 O_2, C_{10} H_{12} O$

Accordingly, I obtained the tobacco poison *nicotine* $C_{10} H_{14} N_2$ when I added concentrated sulfuric acid to a solution of benzoic acid in acetone and then lead ammonia gas into this mixture. Both sulfuric acid and ammonia gas have a dehydrating effect. In this case not only ammonium sulfate and propionate resulted but also nicotine, because 2 acetone $2(C_3 H_6 O)$ decompose into propyl $C_3 H_6$ and propionic acid $C_3 H_6 O_2$. The propyl, united with benzoic acid, together with 2 ammonia, produces nicotine because 2 water are chemically separated: an excellent proof of how *poisonous* substances can result from harmless compounds by simply separating water.

$C_3 H_6 C_7 H_6 O_2, N_2 H_6 - H_4 O_2 = C_{10} H_{14} N_2$

As mentioned before, the poisonous ethyl cyanide CNH, CC H_4, also originates

in this manner from the vitally essential ammonium propionate when it loses 2 water: $C_3 H_6 OO, NHHH - H_4 OO = CNH, CC H_4$. By insertion of 2 water via potassium hydrate the ethyl cyanide can be transformed back into potassium propionate and ammonia. Water is the common turning and pivotal point.

Instead of nicotine I obtained the pepper substance piperine $C_{17} H_{19} NO_3$ by saturating a mixture of benzaldehyde and acetone with ammonia gas and treating the resulting crystals with alcohol and hydrochloric acid.

$2(C_7 H_6 O), 2(C_3 H_6 O), 2NHHH = C_{17} H_{19} NO_3 + C_3 H_6 NHHH (HHO)$

In this case *ammonia* acts as the intermediary substance and immediately chloride of propylamine appears.

Instead of piperine, I obtained the Spanish pepper substance *capsaicin* when I added concentrated sulfuric acid to a mixture of benzaldehyde and acetone which was saturated with ammonia. In this process all of the crystals first created from this compound were soon dissolved under considerable heat, then the ammonium sulfate precipitated and, after neutralization by diluted ammonium and the addition of water, the thickly-flowing brown capsicum resin settled at the bottom of the vessel, showing its nature by its intensive blistering effect.

In order to emphasize the significance of the threefold hydrocarbon in revealing its multiplicity, I must mention that my experiments with acetone and benzaldehyde, to explore to the utmost the legitimacy of their effect in the creation of scents, produced a great variety of umbelliferous scents. According to whether I exposed acetone and alcohol alone to the summer temperature or mixed them with benzaldehyde, with acetic acid, citric acid, lactic acid or benzoic acid, with or without a solution of calcium chloride, I obtained a scent of grated carrots, of caraway, of chervil *(Anthriscus cerefolium)*, of parsley, of coriander, etc.

If in this connection we also consider that the propionic acid, mixed with alcohol or amyl alcohol and concentrated sulfuric acid, after addition of water, produces, e. g., the scents of pears, apples and pineapple, and further, when we observe the form-giving power of the scent substances according to the example of the polarized benzaldehyde crystallized into the odorless benzoin, there is even less reason to doubt the participation of the scent substances in the creation of protoplasm when these unite with *earthy* substance, when we regularly see earthy components in chemical union as essential adjuncts in the various seeds.

In umbelliferous seeds the acetate and malate of calcium, potassium and magnesia as well as calcium phosphate are ever-present characteristic substances. They are found in varying quantities in fennel, anise, caraway and dill and all medicinal herbs, roots, barks, blossoms and seeds contain calcium, magnesia, soda and potash, partly united with hydrochloric acid, partly with sulfuric acid, partly with phosphoric acid and partly with oxalic acid.

No *coincidence* rules here, but strict order and we are justified in considering certain forms and proportions of quantity as physical equivalents of the basic substances of protoplasm. These fundamental elements are responsible for the direction of additional new material and in certain cases restrict the amount of tensional substance from becoming excessive. After this point has been reached *splitting* follows, in animals in the form of germ gland substance, in plants in the form of blossoms. The more or less pungent scent of flowers in the form of oil substance or resin, by attracting the complementary material of another stamen, experiences the type of polarization which we describe *as procreation.*

From this point of view we can understand the specific form of malic acid $C_4 H_4 O_4 HHO$, together with its isomeric fumaric acid, both of which are based on 4 carbon and are present in plants with 2, 4 or 8 leaves *(Paris quadrifolia, Galium cruciatum, Majenthemum bifolium, Convalleria majalis,* etc.).

From sixfold condensed leucine which split in various fragments, the following plants could immediately sprout up one after the other: spiraea, amygdalaceae, solanaceae, umbels and forest trees. And in connection with phosphoric acid, spiders and gnats appear because the leu-

cine contains caprilen in the form of oxycapronate of ammonium which forms the connecting link between animal and plant protoplasm.

In all protoplasm, without exception, *splitting* is a true equivalent of the condensation of further substance. In this way the palm leaf, the fern frond, the banana leaf, etc., split as an equivalent of the condensation of carbon dioxide, water and nitrogen into cellulose, gum, sugar, starch, oil and protein. Oil, flour, sugar and protein were baked from leucine fragments into a cake in the shape of the *banana* surpassing all confectionary art, and since then it is continuously produced anew in Central America, in Florida and elsewhere out of carbon dioxide, water and atmospheric nitrogen by the *sunlight* and *sun heat.*

The appearance of certain forms evidently does not depend *exclusively* on the material ingredients because factors are at work which are beyond our control. Peculiar *light,* peculiar atmospheric *electricity,* a certain *amount of heat,* a certain *humidity* of the air and of the soil have as much influence as educational aids for mankind. Other forms are created in Ceylon, Syria, Thailand, Guatemala, Indonesia, etc., in spite of the same basic material.

The cinnamon tree and the spice shrubs, the dye and fiber plants, the nutritive cereals, oil, flour, sugar and protein plants – they all indeed have sprung from the same source. And since all plant and animal forms originate from the same common basic material, they are able to transform the plant substance or the substance of other animals into the specific form of their own protoplasm. Thus there is no doubt that vegetarians can exist without animal protein.

As a compensation, the plants transform animal material. They usually do this by means of their *roots,* yet the Venus flytrap catches flies by means of its leaves and assimilates their substance. Contradictory to the claims of some physiologists the leaf nerves actually resemble the animal nerves and evidently are animated. Does not the barberry flower stamen promptly bow towards the ovule when tickled?

The spiritual principle understands the art of hiding from foolish eyes!

Through many examples we have become convinced how frequently the threefold hydrocarbon, which is noticeable by characteristic scents, takes part in the formation of protoplasm. The tensional power accompanying the threefold hydrocarbon has also been proven in practice. For example, the nerve tension produced by the hydrocarbon allyl $C_3 H_4$, contained in *onion plants* as a paired union in the form of diallyl $C_6 H_8$, has long been favored by the Semites on account of its obvious stimulating effect on propagation.

The chemically hydrated union of allyl, in the form of *acetone* $C_3 H_1$ HHO, helped to strengthen the weak nerves of the German people in earlier times. A few drops of acetone on sugar taken in cases of exhaustion have a noticeable nerve-strengthening effect. Because of the efforts of the experts, however, this effective cure has disappeared from medical stocks. I looked for it in vain in pharmacies in Germany, England and the United States from 1862 to 1875. Yet, in the year 1867, when I published the pharmaceutical paper *The Retort* in Berlin, Dr. Becker of Mulhausen was kind enough to send me his excellent composition, *Acetone*, the Secret Alcohol of the Alchemists and *Its Medicinal Use*. Like so many other valuables, this work too has been "coffined" by the experts.

Traces of the stimulating threefold hydrocarbons, which accompanied the mysterious working of creation in primeval times and brought about the present forms, are found in all categories. In whatever direction the leucine split into two parts, three hydrocarbons always resulted even though now and then one hydrogen pair is common to two carbons.

Such separated halves no longer were in balance, therefore they started rotating like winged seeds from ripe pine cones fluttering down to earth. Their vibration lasted until the two polarizing halves found one another to combine into a certain form. Similarly, a little bird moves its wings when it yearns for mating.

Propyl-ammonia (propylamine) $C_3 H_6 NH_3$ also belongs to such form-giving separation products of the leucine groups. In addition to trimethylamine this propylamine also originates from the decomposing flesh of salted herrings. It is contained in animal sweat as well and is furthermore a characteristic phenomenon in numerous female animals during their period of heat.

Through oxidation ammonium propionate results which is also found in animal sweat, in the stomach juice from decomposed blood albumin and in decaying meat. Therefore we must attribute the appearance of the split halves of leucine in adult animals during mating time to normal *fermentation* or splitting processes as a result of liberated electricity.

Now when we observe the development of propylamine in dead fishes that are laid in salt and consider that a certain number of the whales that were first created were spared from decay in the cold zones, we can imagine what huge quantities of propylamine appeared when the dead bodies of the whales which were not swept along with the spouting sea water into space, fell back on the porphyry rocks where they were crushed and started to decay.

It is true that the decay progressed quickly because the vibrating popylamine with the intoxicating nitrous oxide transformed into ammonium propionate. But this also had a form-creating effect because the propionic acid contained in the ammonium propionate also has vibrating, therefore, electric tensing properties. It has been found in the blossoms of the yarrow *(Achillea millefolium)* and the proven nerve-strengthening effect of this medicine is highly regarded by experienced midwives. I should like to point out that ergot fungus *(Claviceps purpurea)*, whose effect is also based on propylamine, has been generally replaced by *yarrow* as it does not contain the poisonous substances that restrict the application of ergot.

How the disturbed balance of the split products of leucine by mechanical *rotation power* contributed to a vibrating con-

dition producing new forms can be verified by the fact that the chemical compounds of propionic acid with calcium, magnesium, soda and potash, posses the ability to *rotate on water*. We have already said that propionic acid, in combination with other hydrocarbons, forms stearin fat. Since our *nerve oil* is based on stearin fat, the nerve-stimulating power of the propionic acid becomes clear. In other words *the natural tendency of propionic acid* to double itself is synonymous with the meaning of *pairing*.

Pairing occurred during primeval time without the cooperation of two organisms, yet, nevertheless, it took place in exactly *the same* way as today, by the cooperation of two *vibrating halves* of two split groups. Such split groups had in primeval times, and still have, the character of unpaired hydrocarbons. They were single, threefold, fivefold, sevenfold and ninefold hydrocarbons. We have already studied how the threefold and fivefold hydrocarbons, allyl, acetone, propyl, propionic acid, amyl and valeric acid, represent the split products of leucine. The sevenfold and ninefold hydrocarbons are only added products and belong to the tyrosine C_6 H_4 O, C_3 H_4 OO, NH_3, with which benzaldehyde (bitter almond oil) C_7 H_6 O, benzoic acid C_7 H_6 OO, spiraeic acid C_7 H_6 OO, salicylic acid (willow bark) C_7 H_8 OO, and hippuric acid C_9 H_9 NO_3, form a united family.

The sevenfold and ninefold hydrocarbons, because they exceed the space of a hexagon, give rise to the creation of the *almond shape*. When we find the protoplasm in almond shape, we can be sure to find either benzaldehyde, benzoic, spiraeic, salicylic, or hippuric acid or several of this kind among the split products. This phenomenon covers everything from almond kernels to the castoreum pouch of beavers (in which, amongst others, is contained spiraeic acid and salicylic bitter essence), and includes the male and female germ glands. The single hydrocarbons include, along with others, formic acid CHH OO, urea CON_2 H_4, methylamine CHH NHHH and hydrocyanic acid CNH.

It is obvious that by a combination of these unpaired hydrocarbons a great variety of shapes must result, so that the union of a sevenfold hydrocarbon with a single hydrocarbon by no means entails a pairing. A union resulting in this way, or by the splitting off of a ninefold hydrocarbon, is to be considered as *unpaired* despite the pairing numbers of hydrocarbon atoms such as indole C_8 H_7 N.

We have already stated that tyrosine groups can also be separated from united leucine groups. So we need only consider the leucine whose constructive material was fully sufficient, in union with phosphate, chloride, sulfate earths and silica, to produce the protoplasm for all plants and animals, including human beings. In particular the greatest variety of scents, could result from chemically united leucine molecules, as it is still done today. Their vibrations play a very real part in shape formation because, due to their volatility and mobility, these substances are able to penetrate wherever procreative material is present and because vibrations as a collective movement form an equivalent of *electricity*. The vibration causes a motionless substance to be drawn into the same form of motion as the vibrating one, as for instance when a piano string produces a sound corresponding to a tone created by the vibrations from sharp knocking, coughing, etc.

While I maintain that we must attribute a shape-forming force to scents during the time of organic creation, I wish to point out that this does not concern the setting in motion of *rocks* or the piling up of square building stones of many tons. From the minuteness of the impregnated egg substance we see how seemingly insignificant are the first beginnings of a new organism, even in larger animals, and thus the shape-giving force of scent substances appears in a completely natural light.

The homeopathic quantities of the first formation substance, which could not be seen with the naked eye, had to arrive at a form even more under the overpowering influence of the scent substances which filled the whole atmosphere, since the vibrations of scents exceed all other types of vibrations in intensity. The scent substances vibrate far more energetically than the most delicate sound; they vibrate

so frequently in one second that our eye cannot see the vibrations and our ear cannot hear them. Only the noblest part of the brain, the olfactory nerve, is able to hear, to understand and to interpret the language of the scent substance. And however slight and small the scent may be, however imponderable and invisibly minute, it has the power to direct, to establish a building plan, to design the form according to which the substances must arrange themselves, so that the aromatic scent that develops in the roots of freshly-felled fir trees has the power to transform the material into new protoplasm, with the result that fir forests gradually become forests of beech and oak.

It must also be said that the scent substance displays a gradiation of vibrations similar to that of *sounds*. Fatty oils, for instance, are of heavy vibration, i. e., they are not entirely scentless but only vibrate slowly. Their vibrations become lively when chemical separation occurs, as in rape seed oil after it has been treated with sulfuric acid. The heavy vibration and slight scent of the fatty oils are due to their content of chemically-united oxygen. This negative element has the effect of making volatile substances heavy and *phlegmatic* so that the *fatty* oils, in contrast to the *essential* oils, are not distillable without splitting or decomposition. However, they are by no means scentless; they only vibrate more slowly than the others and form the regulating weight of gravity in the combination of scent substances which participated in the shape formation.

The most volatile and the easiest to distill with water vapor — therefore the most powerful smelling — are the hydrocarbons which *lack* oxygen. These can appear either in pure condition or united with ammonia. The less ammonia they contain the more enjoyable and *attractive* their effect. Who would not put his nose as deeply as possible into a bouquet of roses? Rose oil (stearoptene) C_{16} H_{32} contains the oil-forming hydrocarbons C_2 H_4, apparently in eightfold quantity. What pure harmony! Yet is is produced from the tannin of rose petals and we must therefore consider rose oil as an ether, composed of 2(C_5 H_{10}), dehydrated fusel oil, and 6 hydrocarbons CHH, each. The fusel oil dissonants reach harmony by pairing.

The more ammonia, however, remains attached to the hydrocarbons, the more *repulsive* are the scents to our nose and to our soul and also to the animal. This is the reason why the cow, without knowing botany, safely recognizes and eats the nerve-stimulating meadow grass *(Anthoxandum odoratum)* because it gives off the odor of the volatile *cumarin* C_9 H_8 OO. In the same way she recognizes the meadow queen grass (*Spiraea ulmaria*) whose spiraeic acid C_7 H_6 OO vibrates a third lower than cumarin. This is also the reason why cattle refuse stable fodder in the spring as the air outside is filled with cumarin and spiraic acid odor, and why the cow passes by the poisonous hemlock weed with contempt, because it emits ammoniacal coniin C_8 H_{12} NHHH.

Where *harmoniously* combined scents took part in shape formation, the protoplasm had to develop in finest symmetry. Therefore, the perfect form of the Caucasian race must be partly attributed to the aroma which thuja, cypress and pine emanate, whose scents brought to life the March violet *(Viola odorata)* and whose resin brought to life the violet root *(Iris florentina)*. But also the rose scent participated. Their home and ours is the Caucasus.

The March violet grows in the entire moderate zone of Europa and Asia. The scent is so fine that it cannot be collected in concentrated form from the flowers. Yet without doubt the scent is based on the fivefold hydrocarbons of leucine, which also form the foundation of turpentine trees, because when we drink turpentine oil it reappears in the urine as violet odor. As to the violet root that grows wild in Macedonia, it too contains a camphor based on fivefold hydrocarbon and smells of violets.

A specifically delicate odor was almost certainly effective in producing our race, because each class of animal is subject to a *peculiar* scent and certain scents are traceably connected with the procreation functions.

From the scents of this kind, the *beaver castoreum substance* has been chemically

studied for its medicinal properties. This substance is a specific protoplasm containing phosphate, carbonate and sulfate of calcium, potash and magnesia, protein and fat, also bile and urea parts, hippuric acid, urate and oxalate of ammonia. Finally, it contains in considerable quantities an odorous essential oil based on acetone and benzaldehyde (bitter almond oil) since it dries easily like resin and that is the property of acetone and bitter almond oil when coming into contact with ammonia. Likewise, we find the conversion products of bitter almond oil in the castoreum substance as well as in water distilled from it, because in the distillate, spiraeic acid $C_7 H_6 OO$ is formed which originates from bitter almond oil $C_7 H_6 O$. The union of bitter almond oil with water in the form of saligenin or willow resin $C_7 H_6 O$, HHO, as well as the union of willow resin with sugar in the form of willow bitter essence or salicin $C_{13} H_{18} O_7 = C_7 H_6 O + C_6 H_{12} O_6$, are also proven in the castoreum substance.

Through the spiraeic acid and the willow bitter essence salicin which we find in the castoreum, the salicin-holding willows and poplars whose bark is eaten by the beaver seem to provide the nourishment needed to create the protoplasm. The protoplasm of the beaver resulted from *concentrated* leucine and tyrosine material, whereas that of the poplars and willows originated from a diluted solution which penetrated into the earth and became modified by the earth.

Chemists have also discovered that the procreative secretions of the masculine and feminine beaver correspond in many respects to those of human beings and horses. During the past the southern Siberian rivers flowing into the Caspian Sea were thickly inhabited by beavers. Not far away prairie salt and prairie horses existed and, also, the Caucasian human race originated in this vicinity.

Such a harmony that brings together the building beaver, the intelligent horse, human beings and salt can be understood from the fact that the protoplasm chemically transformed to such a degree that the various components of the evaporated sea water crystallized one after the other. They all had certain basic components of their protoplasm or first germ substance in common, the modification of which depended on a changed direction of the nerve substance caused by earth substances.

As to these *basic* groups which are *essential for all organic life,* the castoreum extract and its effect on the human nervous system teaches us that these cannot be the *mineral* components because the calcium sulfate and carbonate, potash and magnesia, as well as ammonium-magnesium phosphate remain insolubly behind when we extract the castoreum with 10 parts of strong alcohol for the preparation of the essence. It is particularly this essence which possesses in a pronounced way the effects of acetone and of yarrow blossoms containing propionic acid. Castoreum extract stops cramps, increases the pulse, has a warming effect on the nerve endings of the external and internal skin and generally enlivens the nervous system. Weak labor pains are made stronger, disturbed menstruation put in order, hysteria and epilepsy cured. (Thirty drops castoreum extract mixed with a teaspoonful of rum or brandy makes an effective dose.) These curing powers of the specifically scenting protoplasm of the beaver, present in the same form in male and female beavers, were already known to Pliny the Elder and Dioscorides.

From such a positive proof of the effect of scent substances on the nerve power as contained in the castoreum whose volatile basic substances indicate the presence of acetone and bitter almond oil which in turn are derived from leucine and tyrosine — we are fully entitled to attribute also the natural creation of *human beings* to the metamorphosis of these two substances *leucine and tyrosine* which, while clinging to the common handle of dehydrated ammonium carbonate (urea) as male and female, originated from the carbonate of ammonium oil $C_{12} H_{24} OO$, 4 NHHH COO.

The common soil on which the male and female grew up was the mellit stone (melliferous clay), to which the fatty substance of the human protoplasm remained attached in the same manner as that of the diving duck and beaver. Originated

from leucine, the mellit stone transformed into leucine again through the effect of the urea substance which was dissolved in the water. Together with the phosphate salt solution the leucine produced nerve, muscle and bone tissue while the clay remained behind . . . *"And the Lord God formed man of the dust of the ground"*.

Today the leucine of the sea water has been used up and the mountains no longer tremble from the after-effects of thunderstorms followed by exploding ammonium carbonate and exploding fulminic acid gas. The intoxicating nitrous oxide has also disappeared from the atmosphere. These held the first creatures in unconsciousness until they collected in a short time as much phosphate substance as the mushrooms today collect after a rain storm. Now things happen more slowly and deliberately and with obstacles of all kinds.

If there were sufficient leucine and phosphate, electric air and nitrous oxide (laughing gas) available, the original creation of human beings and large animals from salt water would still be able to take place today, similar to 6000 years ago, because there are enough locations which seem favorable. The Caucasian human children originated in the warm "nests" of trough-shaped valleys protected from north and east winds by mountain ridges, which retained their heat under the protection of high granite or porphyry rocks on which the sun shone. Gorges and valleys were there which never became cold.

In Georgia in the Caucasus between the Black Sea and the Caspian Sea, or perhaps in Daghestan — where many hot springs existed and where in the more inland parts a dry, hot climate prevailed even in winter, where paradisical fruit gardens abounded and female bears and wolves lived, therefore where all conditions were favorable to rear human beings, and most certainly in the Kura Valley which, sheltered from the north wind, forms a natural nest — there our mothers, the beautiful Georgian women, saw the light of day, and their descendants then gradually moved to Persia, Armenia and Arabia.

In the valleys of the Caucasus all conditions still exist to permit a prolific growth of animal and plant protoplasm. Oil is found there and mineral coal is available as well as lignite accompanied by melliferous clay. Also peaches, almonds, figs and grapes grow in abundance. Deer and cows live there, as well as large hens, ducks, swans and pelicans, the eggs of which can serve the human being as nourishment, alternately with the fruit, wine, cow's milk or bear's milk.

Common salt, indispensable for our blood, is available in plenty because in the Aras Valley very fine quality *rock salt* is mined. When I say common salt I do not by any means refer to the purified sodium chloride sold under the name of "salt"; the whiter it is, the higher the price.

The solution of *common salt,* out of which our race originated in the Caucasus was of the same consistency as the brine which today we allow to flow over graduation works in order to oxidize the iron chloride and manganese chloride with the oxygen of the air, whereby the basic solution of manganous and ferrous oxide are insolubly separated by the oxygen and carbon of the air. At the same time the dissolved gypsum, the dissolved silica, the aluminum-potash-soda sulfate and the calcium fluoride are separated from the more concentrated solution. All these substances, including their bromine and iodine compounds were necessary for our peculiar protoplasm; so when children of today become scrofulous, instead of removing their "glands" they should be given natural saline salt water to drink.

It was the natural sea water from which, in the deserts as well as in the Alps, on all mountains in Galicia, Hungary, in France, in Spain, the gypsum and rock salt crystallized. This we learn from the admixtures of calcium and magnesium carbonate, loam, clay and petrol-hydrocarbon (bitumen) of the natural salt deposits. In the trough-shaped valleys the sea water which was flung over the mountains by the waves during storms evaporated on top of the impenetrable clay. In proportion to such evaporation that took place, the various salts crystallized at Stassfurt and at other places where saline deposits are found.

Gradually, as the chemical constitution of the salt solution changed by slow degrees, new types of protoplasm arose which together served as a basis for *leucine* or, its equivalent, *protein*. Simple calculation proves that protein, which is always found with more or less sulfur and phosphate in equal chemical composition in plants and animals and undergoes thousands of transformations, is in fact identical to *leucine*.

Since potassium sulfate, which displays a combining force in two directions, attracts 6 leucine on each side, a *potassium* protein resulted.

$K_2O, SO_3; 6(C_6H_{13}NOO) - 6HHO = C_{36}H_{66}N_6O_9S, K_2O$

(See Table of Figures page 10)

In this compound of 710 weight parts without the potash are contained approximately 54% carbon, 9% hydrogen, 11% nitrogen, 20% oxygen and 4% sulfur, thus Mulder's protein.

When a solution of such sulfate of potassium-leucine came into contact with calcium phosphate, it changed partly into gypsum (calcium sulfate) and *phosphate* of potassium-leucine and thus, thereby in primeval times began the magically rapid growth of all forms, vegetation as well as of animal bodies.

Today the protein of the trees is produced much more *slowly* and in quite different ways. Water must first penetrate into the earth and disperse; some atmospheric air then enters the earth to fill the gap left behind by the water. After oxygen, in the form of hydrogen peroxide has been separated and after *nitrogen* has been *added,* the carbonate earths, combined with calcium sulfate and water, are now transformed into calcium sulfate leucine or calcium protein.

The ashes of forest trees are synonymous with dehydrated and nitrogen-free protoplasm. Only the addition of water, air and sun heat are needed to see new growth come out of such ashes. Therefore wood ashes should be used as fertilizer. Wood ashes which contain potassium, sodium, calcium and magnesium carbonate, sulfate and phosphate combined in natural proportions — which have already served in the formation of protein — scattered over the fields, are equally as good as if clover seeds are sown. It is necessary that the *soil* be loose because if no *air* can enter, as in rocky soil or if the water cannot flow off as in pure clay soil, then no clover will grow, even if clover seeds are sown.

These facts are well known to the practical farmer, as is the necessity of *gypsum* and *calcium carbonate* (marl) in order to grow clover. This was already known nearly 200 years ago to Johann Schubart of Kleefeld, Germany. who gave the farmers who laughed at his theories a lesson *in writing*. He had gypsum scattered on the fields, but only enough to form the words: "Here gypsum has been sown". When growth started those sections excelled all others in very clear readable form and the astonished farmers experienced deep embarrassment. The same principle was taught by Benjamin Franklin.

We do know that a sulfuric salt is required to produce more of the protein substance needed by clover for its growth. But that clover originates out of protein ashes *without* seeds having been sown is a theory that appears to be excessively heretical that no one is likely to admit to such a transforming power of the wood ashes. It is truly amazing to see how the evidence is distorted. In Karlsruhe in February, 1885, an article appeared by Dr. J. Nessler *Concerning Manuring of the Meadows with Artificial Fertilizer* opening as follows:

"It is presently a fact known by almost every farmer that the meadows generally improve significantly as soon as wood ashes are scattered over them. There, where previously no or only *little clover* could be observed- many strong clover plants grew after manuring with ashes. It is clear that clover does not originate from wood ashes but small clover plants were present which, through lack of correct nourishment, could not develop strongly. Wood ash provides this nourishment and therefore, when it is applied, the small clover plants can become strong".

With this explanation we have established the *meaning* of primeval creation of all forms. It is beyond our power to produce a certain form out of stony ma-

terial so we must be content with what grows when electricity and moisture in the air, together with warmth of varying degrees according to the season, come into contact with the earth substance. The wood ashes of fir or beech do not first produce a beech again, but many various kinds of grass and herbs, among others also *clover*. If we desire *specific* forms, we must sow their seeds. These then attract such substances which are required to produce the form from which the seeds originate.

But if we scatter carbonates, silicates, clay, sulfates and phosphates over the meadows, the same effect is obtained as if wood ashes had been strewn over the soil. *Protein* is then produced out of carbon dioxide, water and atmospheric nitrogen.

However, with regard to the definition of protein or protoplasm (original organic formation material) this must be brought into a broader aspect, in the same manner as the definition of albumin. The result of our studies is that we have now collected the required information to lead nature, as organic matter, back to the *substance of the sun*.

Variation of Protein Mixtures

In accordance with the various zones of the sun which supply the substances, there exist many different kinds of protein. We must primarily consider *earthy* and *gaseous* protein. By gaseous I mean actual *gas* or *spirit* combined with a little oxygen which makes the volatile vapors heavy and reduces their mobility and expansion-impulse so that they become visible and tangible. This concept of the spiritual being will be of use to us when we speak of the *soul* as something substantial as distinct from consciousness and *thinking power* which only indicate a condition or an ability, therefore something *non-substantical*.

Sun-Fragrance Protein. Let us first discuss the gaseous, or *spiritual*, protein or, as I feel fully justified to call it, the *sun-fragrance protein*. The sun's atmosphere is intensively laden with cyanogen $C_6 N_6$ and this gas has the characteristic bitter almond scent. Even where the cyanogen extends into the space hydrogen and where it condenses with this hydrogen into hydrocyanic acid, or prussic acid $C_6 N_6 H_6$, it smells of bitter almonds because prussic acid develops the same odor as cyanogen.

But once the heavy nitrogen (N=14) returns to the sun core while the lighter carbon (C = 12) confronts the hydrogen, the hydrocarbon odors CHH will predominate. At the outermost borders of the sun's atmosphere it smells indisputably of rose oil stearoptene $C_{16} H_{32}$. But in between the most varying gradations exist — lavender scent $3(C_{10} H_{16})$, myrtle fragrance $C_{20} H_{32}$, thuja $C_{10} H_{16}$, thyme $C_{10} H_{12}$. The finest and loveliest smell originates when the *myrtle* wreath of the sun $C_{20} H_{32} = 2(C_{10} H_{16})$ metamorphoses into a *rose bush* $C_{16} H_{32} = 2(C_8 H_{16})$ because the sun scent weds the space hydrogen. Myrtles and roses on the sun corona! Do not tell this to any professor of physics! — as of course, even with a telescope, these scents cannot be seen. Yet the earth is surely a sun child. And how could we get roses and myrtles if they did not already exist as sun flowers?

The nearer we approach the sun core, the stronger the smells. Beyond the rose and lavender scents begins the onion odor $C_6 H_8$. Then comes the very sweet *honey* smell similar to aniline oil $C_6 H_7 N$; thereafter *bitter almonds* $C_6 H_6 N_6$. Now the fragrant scents are over. With the marchpane and bitter almond odor gradually mingle the repulsively sweet chloroform odor of carbon chloride CCl_4, the sour smell of phoshorus chloride PCl_3, the smell of putrefying fish PH_3 (phosphine) and of rotten eggs CS_2 (carbon disulfide) and SH_2 (hydrogen sulfide). To be brief, we have in the odorous sun atmosphere lively animal protoplasm.

Human Body Represents Sun-Odor Protein. First, we find the rose oil stearoptene $C_{16} H_{32}$ vibrating far into the ether in

oxidized form as palmitic acid $C_{16}H_{32}O_2$, proven to exist in our brain substance which, like the sun, distributes its branches widely in the form of brain and spinal cord nerves. The deeper we go into our intestines the stronger the odor of putrefied fish (phosphine amine) and rotten eggs (hydrogen sulfide), the same as in the sun atmosphere. Between the nerve endings in the skin and the intestines there is muscle flesh based on fat substance and urate of ammonia. Since uric acid is based on hydrocyanic acid which smells of bitter almonds and also exists in the sun atmosphere, and since our sinew substance also contains sulfur parts, it is clear that our organism represents condensed sun-odor protein.

We could question why, if our nerve oil is based on rose scent acids, palmitic acids and sweet glycerin, we do not walk on pure roses and only eat sugar and honey like butterflies. The answer is not difficult. A butterfly, which lives only two or three days, can exist solely on rose scent and honey. But a poor human being who often must go through life 80 years would die of weariness if he had to walk on *roses* without any change! Not just for three days on a rush visit, but 80 years long! Who could wish for this?

That is why not only caproic acid $C_{10}H_{20}O_2$ and honey oil (aniline) C_6H_7N have been added to rose scent acid (palmitic acid) $C_{16}H_{32}$ but also wormwood oil (absinthe oil) $C_{10}H_{16}O$ in order to transform the phosphine (will-o'-the-wisp gas) PH_3 with water and oxygen into mammal nerve stearin.

2 palmitic acid	each	$C_{16}H_{32}O_2$
2 caproic acid	each	$C_{10}H_{20}O_2$
2 absinthe oil	each	$C_{10}H_{16}O$
2 aniline	each	C_6H_7N
2 phosphine	each	H_3P
2 oxygen	each	O
6 water (twice)		H_6O_3
2 nerve stearin		$C_{12}H_{84}O_9NP$

The nerve protein is capable of innumerable metamorphoses! Proteus, the son of Oceanus who lives at the bottom of the sea, rises to tend the sea calves of Poseidon and changes into a new form (lion, panther, pig, snake, fire, water) every time he again dives into the sea — always it is the *leucine* protein dissolved in the sea which burns into carbon dioxide and water.

When the butterfly, or sweat, or caproic acid $C_{10}H_{20}O_2$ unites 2 hydrocyanic acid CC NN HH and 2 water H_4OO, we arrive at 2 leucine $C_{12}H_{26}NNO_4$. Therefore, sweating is very wholesome. On the other hand, if 2 leucine lose 2 water and 2 sweat acid in the intestinal walls, as happens in tropical climates, hydrocyanic acid remains behind, killing the blood iron and resulting in cholera. If, however, *water* and *absinthe oil* plus a little oxygen are again added to the hydrocyanic acid by a cup of hot wormwood-tea, then we have *leucine* again and the patient is cured. 2 CC NN HH, $C_{10}H_{16}O$, $H_8O_4 + O =$ 2 ($C_6H_{13}NOO$) + 2 C O N H.

The *sour* sweat acid, the *bitter* absinthe oil and the *sweet* honey scent transform, together with 3 oxygen, into *bile acid* $C_{26}H_{43}O_6N$, which combined with 8 oil-forming hydrocarbons (rose stearoptene) and water and phosphine, also produces nerve protein.

2 Stearoptene	each	$C_{16}H_{32}$
2 bile acid	each	$C_{26}H_{43}O_6N$
2 phosphine	each	H_3P
6 water (twice)		H_6O_3
= 2 nerve protein	each	$C_{42}H_{81}O_9NP$

Here again we have Proteus who pastures the sea cows, sea lions and common seals of Poseidon. Whether seals or whales, their bone cavities contain whale oil welded together by rose scent acid $C_{16}H_{32}OO$ and rose scent stearoptene $C_{16}H_{32}$. If a little leucine, *fish odor* (hydrogen phosphate or phosphine) and 2 oxalic acid are added, then only a *fermentation* is needed whereby water is decomposed and 2 hydrogen are added — and again the *nerve protein* rises out of the sea. Oxalic ammonia originating from cyanogen and water were not lacking in the primeval sea.

whale fat	$C_{32}H_{64}O_2$
leucine	$C_6H_{13}O_2N$
phosphine	H_3P
2 oxalic acid	$C_4H_4O_6$
2 hydrogen	H_2
= nerve protein	$C_{42}H_{84}O_9NP + HHO$

We are now indeed convinced:

1) that the substance of the fragrant sun atmosphere *conforms* to our protoplasm;
2) that the scenting materials of the sun substance have a form-giving effect because they polarize or pair;
3) that the human body, as far as *muscles, sinews* and *nerves* are concerned, has been composed from the volatile odors of the sun shell and can again decompose into odors (lard acid, sweat acid).

Now, only our *bone substance* remains to be examined to see if it has the character of protoplasm. If in this respect we also find conformity with the sun (and this we shall find), I do not know what prevents us from addressing the sun as an animated being and as our dear mother who stretches out with thousands of white diamond arms into the ether, gathering roses, violets and forget-me-nots. Never resting, she rotates always producing and distributing lively warmth. In spite of uninterrupted distribution from her horn of plenty her power has not diminished in 6000 years. She retains her magical light and radiant youthful beauty and bestows kindness with her whole *soul,* but *unconsciously* because *soul* and *consciousness* or, the equivalent, soul and reflection, stand in polar opposition to one another. Searching thinking, conscious reflection, come only through polarization, crystallization and reversion of the outwardly directed rays. And reversion and contemplation are possible only in a *cooled-off* condition.

The fire of passion and cool reflection can, by nature, never appear simultaneously. The consequences of the effort to couple the two can be seen in the outcome. Just look around! How much deformity of body and mind! How little thought and brains on the *one* hand, how much miserable one-sidedness on the *other;* how much delusion *here,* how much obscurity *there,* how much cold calculated deception with *seeing* eyes, how much blind fanaticism!

Phosphates of Protein Earths. Like the potassium metal that penetrates all zones of the sun star, so is phosphate contained not only in the gaseous spheres but also, united with oxygen, as phosphoric acid P_2O_5 in the granite flux of the sun. If all bases as well as silicic acid are dissolved out of granite rock, aluminum phosphate remains. Since this produces the same chemical reactions as pure clay, some chemists have completely overlooked the phosphoric acid in the wavellite rock which is water-containing aluminum phosphate, and this actually does contain 30% phosphoric acid.

In other instances in nature we find all the earths that are available in granite in a phosphate compound, e. g., barium oxide, lead oxide, calcium oxide, magnesium oxide, ferrous oxide, cobalt oxide, copper oxide, uranium oxide and zinc oxide. With all these earths the phosphoric acids form fireproof, partly *ray-shaped,* hardened glass fluxes. If these glass fluxes resist *fire,* they do *not* resist *water* and carbon dioxide.

The phosphate earths, ferrous oxide, calcium earth, magnesia, potash, soda and, consequently, the granite rock in which they are contained, function like an electric chain because the phosphoric acid attracts water; and the earths, calcium (chalk), soda, etc., attract *carbon dioxide.* The power of such chain effect lies in the earth phosphates, reliable storage places for sugar and starch. A complete tower structure of plant substances can arise only when calcium phosphate is present. Burnt bones, because they contain calcium phosphate, produce by themselves a certain plant growth which, on the basis of the law of chain effect, become highly potent when gypsum (calcium sulfate) is added because it pre-eminently produces the leucine sulfate or protein. Without sulfur no protein.

The Creative Power of the Phosphates. So that we may systematically ascertain where we can seek our *sources* of help in order to enjoy as much "heaven on earth" as is our birthright, we shall give some examples of the creative power of calcium phosphate and magnesium phosphate:

The *Biblical manna* of the desert was a starch-holding lichen *(Lecanora esculenta)* which, without its content of calcium phosphate could not have served the Israelites as nutrimen. The manna lichen grows on granite rocks, originates

after rain, and thanks to the carbon dioxide which comes down with the rain, rapidly develops growth within a few hours, forming small round balls resembling wheat grains.

Skull moss. On granite phosphate, also on tree bark in which substance calcium phosphate is gathered, and on animal bones, whose oil substance is oxidized and consumed by the air, grows skull moss *(Parmelia saxatilis),* a lichen with leaflike foliage. During the thirty years between 1618-48 in Germany they discovered that this moss, called *muscus cranii humani,* was effective in treating epilepsy because it contains protein phosphate regardless of whether the moss grows on bones or skulls or direct on rocks.

Reindeer moss (Centraria islandica) grows on the soil of Iceland and Norway and also on German mountain-forest soil. The condition necessary for its formation is cool temperature. It is also often produced by the protein of pine needles and contains all required minerals necessary for animal protoplasm, especially ammonium-magnesia phosphate, potash and chalk. The proportion of magnesia, potash and calcium is 6 : 6 : 26. Since human bones as well as cattle bones have a ratio of 6 : 300 of magnesia to chalk, and potash is entirely lacking, the food of the reindeer explains its fine and flexible skeleton. Reindeer bones are so soft that after boiling them I can cut them with an ordinary knife. Reindeer antlers with their teeth-like form repeat the form of the Iceland moss on account of their nourishment. The deer with their antlers repeat the branch form of the young tree shoots on which they feed, whereas the smaller roe confines herself to shrubs and so produces shrub-like antler forms.

Carbonates of Earth Protein. All types of clover contain oxalic acid CC HH O_4, partly by itself, partly united with potash, chalk and magnesia. There are scarcely any plants which do not, some time during their vegetation, contain calcium *oxalate,* and almost *half* of the germinating store of individual kinds of alga and lichen consist of calcium oxalate. *Carrageen moss* (Irish seaweed) forms a typical example. Under this name a variety of algae are combined which originated in the sea water on the Atlantic coast out of limestone which had been warmed by the sun. Their protoplasm originally was nothing but calcium carbonate, but our pharmacologists and botanists do not admit since it does not fit in with their form of teaching. They say: "To the basis of the alga which originates from a small disc fixed to the rocks, 'remains' of polyp or coral crusts *(Flustra pilosa)* are attached which consist of *calcium carbonate".* However, in this manner they unconsciously describe the origin of alga from calcium carbonate.

When the sea salts (sodium iodide, chloride and bromide, phosphate, sulfate and chloride of calcium and magnesia) join this calcium carbonate, then from the calcium carbonate and water, soda starch develops which grows up in the water in the form of fork-like split leaves. Its shape formation and slight nourishing value is attributable to small quantities of gypsum and phosphate of calcium protein. This takes place in the sea where the sea water supplies all kinds of salts. Conditions are not quite as favorable in the air as the air does not contain calcium phosphate. Therefore, in contrast to carrageen moss, *tartar lichen (Lecanora tartarea)* exists which is poor in phosphates. For this too the botanists admit that its germinating spore has in fact no leaf shape. It is without describable boundary. It has the shape of tartar-like calcium crusts. Tartaric calcium crusts! The meaning of protoplasm has been degraded to this! Actually, Lecanora tartarea is associated with *Pertusaria communis,* the German litmus lichen, which grows on basalt and of which the germinating force represents a white "crust of calcium oxalate".

With regard to the calcium oxalate which we should consider as "egg substance", so to speak, this is a type of *earthy cyanogen* because 6 cyanogen and 6 water supply 3 *ammonium* oxalate. We have thoroughly studied how ammonium oxalate can be transformed into *animal* protoplasm. Now we shall learn about calcium oxalate first as *plant* building substance and then see how, by gradual loss of its calcium, it can change into

animal protoplasm simply by the absorption of water and atmospheric nitrogen by separation of hydrogen peroxide.

1. **Calcium oxalate.** This originates when a coherent group of 6 calcium carbonate with 6 water experience a chemical condensation while, as equivalent, 3 hydrogen peroxide are split off which contain 6 oxygen. 6 COO + 6 HHO = 3(CC HH O_4) + 3 HHOO. This gives us the nature of *plant vitality* and the nature of the egg substance in clearest form.

There is no such thing as plant vitality as a special force.

What we take for egg substance of mysterious character is nothing but a definite number of chemical unions in definite symmetrical grouping. The ornithologist Cabanis gives this explanation: "Not the most complicated but the most simple, that which is the most obvious, is able to give us light". The most simple, in this case, is the *calcium oxalate*. It permits us to study the vitality in *principle*, to prove that the *drop of water* is the basic egg substance which brings the mineral components to life while it adds more and more hydrogen and creates ever more complicated forms in proportion to the number of earth varieties available.

What happens when calcium carbonate metamorphoses into calcium oxalate? An electrolytical decomposition of water takes place during which the decomposition products hydrogen and oxygen immediately form new unions under the influence of the electric power of sunlight.

The electrolytically-separated hydrogen HH unites with 2 carbon dioxide COO COO into oxalic acid CC HH O_4, while the resulting oxygen O together with a second molecule water HHO turns into hydrogen peroxide OHHO, which in the sunlight, of course, immediately again decomposes into oxygen and water. Once the sun shines longer and more efficiently its effect is not restricted to bringing forth only hydrogen peroxide. But during winter the sun power does not go beyond the production of hydrogen peroxide, proven by the hydrogen peroxide found in the snow which falls on the green meadows in March.

The addition of 2 water to 2 carbon dioxide, however, follows only in those cases where the carbon dioxide is *attached to earthy substances* such as potash, calcium or magnesia. By uninterrupted addition of water to calcium oxalate and other types of earths, gradually *sugar and oil* are produced – these potent and changeable substances which originate without eggs and seeds and without genealogical parents. The so-called *vitality* of the plants must be attributed to the formation ability of *water* and *rocks* which chemically combine into a fertile union provided the electric *sunlight* and the *sun heat* are effective. At least two bodies and one force are required to bring about a change of direction in growth. For organic growth, therefore, rocks, water and sun power are required plus atmospheric air.

Ultimately, this vitality is merely sun power which appears in the changed form of a symmetrical formation of layer upon layer of rocky substance, water and air in more or less shifting condition so that *organic growth* is composed of the following factors:

a) the inborn concentrated elecric *tension* due to the force of gravity of potassium, sodium, calcium, magnesium metals, etc., whose carbonate compounds are somewhat diminished but not abolished;

b) the inborn *mobility* of water;

c) the characteristic *force* of hydrogen to unite with other substances;

d) the *sun* rays which weld together the earthy substances with water and air.

All these factors can definitely be ascertained in calcium oxalate in the various stages of metamorphosis through which it passes. When calcium oxalate is produced, exactly the same process takes place as when a polished knife is dipped into a solution of blue vitriol (cupric sulfate).

Like the sun electricity, the electricity of iron likewise decomposes water into oxygen and hydrogen. When iron alone has this effect, it is understandable that all metals present in the sun, of which the electricity of potent efficacy reaches down to the earth, must bring forth a similar result.

Let us now study what actually happens when we dip a polished knife into a solution of cupric sulfate! We shall be amazed by the perfect conformity of the product with *oxalic acid*. When a polished iron is withdrawn from a solution of cupric sulfate in which it has stood for 5 minutes and it is then covered with polished copper, the following processes have taken place: the tree bodies, iron, water and cupric sulfate, have condensed together to split into three other bodies, namely, iron sulfate, water and copper.

$$\begin{matrix} Fe & Fe \\ SO_3; & O,HH \\ Cu & Cu\ O \end{matrix} = \begin{matrix} Fe & Fe \\ SO_3; & O \end{matrix} \Big| \begin{matrix} \\ \\ Cu\ Cu \end{matrix} \Big| \begin{matrix} \\ H\ H \\ O \end{matrix}$$

The old mysterious explanation of this process says that the greater electric tension of the iron conquered the smaller electric tension of the copper. The fact is that a disturbance of an existing equilibrium takes place by the entry of a new body, resulting in a new grouping or a *condensation* with subsequent *separation*.

At the same time, however, we are dealing with *fermentation*, that is, a fermentation of the water which decomposes into hydrogen and oxygen. Further, a *wandering* or *movement* takes place because the hydrogen moves toward the copper oxide and links with it, thereby turning into CU CU, OHH. After such condensation a separation into metallic copper Cu Cu and water OHH is certain to follow immediately and thus the vibration is brought to a standstill.

Eventually, this process is a *metamorphosis* of water. The above formula makes it clear that the water which results from the addition of hydrogen to copper oxide contains a different atom of oxygen than the electrolytically decomposed water which left its oxygen in the iron. Finally, we come to the *intermediary role* of water. Water is added and water again leaves after the union has been effected.

Exactly the same process takes place during the creation of oxalic acid which also is related to the metallically-separated copper because it can exist *independently* as is proven by the sour rhubarb stalk and the sorrel in which it is contained in free condition. In other respects its origin also corresponds precisely with that of the galvanically-separated copper since in the copper oxide, Cu Cu O only *one* oxygen is chemically united to 2 copper (equivalent weight 31.7), whereas in 2 carbon dioxide *four* oxygen are attached to 2 carbon. When after continuous decomposition of water the other 3 oxygen are also separated, pure carbon will result corresponding to the metallic copper, but in union with other carbon groups since six of these carbons always cling together. An illustration of such reduced carbon is shown in the tannin molecule (See figure page 26).

The aim of the carbons to cling together in sixfold number is the basis of the symmetrical structure of all organic forms. With the pairing aim of all carbon compounds in mind we shall now further study the development of the earth protein carbonates.

2. **Calcium tartrate** originates when 2 calcium oxalate unite with 6 hydrogen while, by condensation with 6 water, 3 hydrogen peroxide separate. $C_4\ O_6\ 2Ca_2 + H_{12}\ O_6 - H_6\ O_6 = C_1\ H_6\ O_6, 2Ca_2\ O$.

3. **Calcium malate.** The change of tartaric acid $C_4\ H_6\ O_6$ into malic acid $C_4\ H_6\ O_5$, succinic acid $C_4\ H_6\ O_4$ butyric acid $C_4\ H_8\ OO$, and acetic acid $2(CC\ H_4\ OO)$ — since these four acids are found in common in the tamarind fruits — becomes understandable through chemical condensation of 4 molecules tartaric acid with 1 water as a result of the intense heat of the sun. The fivefold *condensation* is succeeded by a fivefold separation or new grouping into 1 malic acid, 1 succinic acid, 1 butyric acid and 2 acetic acid.

In those instances where the mentioned acids are found *singly* as for example the malic acid next to the tartaric acid in grape juice and in a large number of plant juices in the moderate zones — more simple processes take place because the component parts of the water supply reduction and oxidation products of calcium tartrate or oxalate. This explains the presence of succinic acid in resin which produces the calcium oxalate-containing bark of pine trees. It is confirmed by experimental chemistry that the uniting force of hydrogen which is created by electrolytically split water now enters into effect. If we ferment a solution of

malic acid by means of yeast rich in phosphates we do indeed later find succinic, butyric and acetic acids instead of malic acid.

Another illustration of these transformation products of tartaric acid or calcium oxalate is found in the root of the rhubarb which is related to wood sorrel *(Rumex)*. Herein we find calcium oxalate, tartrate and malate in common with one another. The fact that calcium malate is created by calcium carbonate is proved by its rich gathering in the tobacco plants grown on the chalk soil of Java or the Antilles. These give a white ash, in contrast to ill-reeking tobacco which leaves black ashes behind that smell of burnt horse hoofs due to the thoughtless use of *dung* and nitrogen for manuring.

With the malic acid the process of condensation of the atmospheric nitrogen into water and ammonia begins. During this process asparagin is created which exists temporarily in many plant germs and proves that, by absorption of water and atmospheric nitrogen and secretion of hydrogen peroxide, the roots bring forth ammonia NN H_6, which, together with malic acid, produces asparagin.

Since this fact is of major significance in agriculture I should like to point to the experience that asparagus needs a porous, chalk-containing, sandy soil for its growths which exercises a power on the atmospheric air and the morning dew and thereby collects sufficient ammonia so that under these conditions animal dung is not necessary.

Even more striking is the presence of asparagus substance in *licorice*. The latter only grows on chalky soil, e. g., in England (Northampton, Yorkshire, etc.). In France, licorice cultivation is only a paying proposition in those parts, Herault and Loire, where first-class limestone is found. Spain's rich licorice production also is due to the limestone formation of its mountains, and Italy's to the chalky rocks of Calabria. The most interesting kind of excellent licorice is found on the delta of the Volga River. After the spring brooks have carried the light chalk mud and sand from the highlands into the river, it deposits the debris at the shore of the Caspian Sea so that after the flood with sand and chalk, the islands of the delta are again visible, the water receeds and the air penetrates the soil and the tap root of the licorice bush sprouts without having been planted or sown. The Russian farmers each year plow and remove the roots mercilessly and each year the roots are there anew without setting young plants or seedlings and without the root having runners as does the Spanish and Siberian licorice. This proves not only the original creation of a plant out of mountain debris, but also the metamorphosis of atmospheric nitrogen into ammoneia in the shape of asparagin. As a further illustration, the cultivation of licorice in the botanical garden in Berlin was a failure because no chalk was supplied for its growth. The resulting product had neither yellow pigment, nor sugar, nor asparagin, nor glyzyrrhizin.

It is astonishing how Saussure's experiment, proving that leaf plants can be grown in carbonate-holding water, still prevails. Since then many people even rely too much on the air and so when a coffee tree in the palm house of the botanical garden in Berlin produces not more than two beans one is much surprised. Like the tobacco plant, the coffee tree and the licorice bush also need calcium carbonate and phosphate for their nutrition.

4. **Erythrito sugar** $C_4\ H_{10}\ O_4$. This sweet compound of hydrogen with oxalic acid is found in the lichen *Protococcus*. In accordance with its origin from calcium carbonate the erythrito sugar with water undergoes various metamorphoses in the sunshine. It produces, with 2 molecules orseille acid $2(C_8\ H_8\ O_4)$ resulting from sugar by pairing and oxidation and by separation of 2 water, the erythrin acid $C_{20}\ H_{22}\ O_{10}$, which is found in *Roccella tinctoria* and in *Lecanora tartarea*. These chalk lichens when treated with ammonium carbonate by the exchange of chalk with ammonia, give colors of red and blue shades which, after the addition of gypsum, form protein substances (litmus). Such color production relating to chlorophyll is also created by the absorption of atmospheric nitrogen which

is dissolved in rain water and can be observed as a green color on rocks in whose depressions rain water has remained. In many districts the lichen is of brown-red color and after a thunderstorm appears in granite mountains in such large quantities so that its rapid growth makes one believe that the *rain* brought it down because it wasn't there before. That is why it is called *blood rain.*

This is repeated in the orseille acid C_8 H_8 O_4, the normal addition of water into oxalic acid and the separation of hydrogen peroxide. 4(CC HH O_4) + 12 water = C_8 H_8 O_4 + 12 HH OO. How clear, how true to the laws of nature do such processes appear as equivalent of the sun power and how distorted and unrelated are these simple stages in the development of carbon dioxide as taught from the lecturer's desk.

5. **Citric acid.** When 3 oxalates, each CC HH O_4, are condensed with 9 water HHO, and 6 hydrogen peroxide H_{12} O_{12}, are separated, then citrit acid C_6 H_8 O_7, 2 HHO is created. The number of plants in which citrate of potash, calcium and magnesia appear in addition to tartrate and malate compounds is incalulable. The plants containing citric acid (red currants, gooseberries, cranberries. *Urginea maritima,* beet, acorn, pine needle, mushrooms) are always found on *calcium*-containing soil and this clearly explains the origin of citric acid from oxalic acid.

6. **Fruit sugar** C_6 H_{12} O_6. Citric acid plus 3 HHO, minus 3 HH OO, produces fruit sugar, as is proven by oranges which are at first sour and then sweet. C_6 H_{12} O_9 + H_6 O_3 = C_6 H_{12} O_6 + H_6 O_6

7. **Grape seed oil** C_6 H_{12} = grape sugar plus 6 HHO minus 6 HH OO. Grapes only become sweet and fragrant under the heat of the sun in moist soil.

8. **Leucine acid** C_6 H_{12} O_3, apparently is the intermediate transitional stage from sugar C_6 H_{12} O_6 to oil substance C_6 H_{12}. When 2 leucine acid condense with 2 nitrogen and 4 water, 8 equivalents result in the form of 2 leucine and 6 oxygen united with hydrogen.

2 (C_6 H_{12} O_3), NN, 4 HHO =
2 (C_6 H_{13} NOO) + H_6 O_6.

While 6 leucine with potassium, calcium or magnesia sulfate are liberated from water by the electrolytical power of the sun, the plant proteins which are based on cyanogen remain behind. The ripening of fruits by an increase of sugar content and fragrance to replace the acids is nothing but a gradual addition of hydrogen to carbon dioxide. In all such originally sour fruits which grow wild on chalky rock (blackberries, raspberries, grapes) the appearance in stages of oxalic acid, malic acid, tartaric acid, citric acid, sugar oil and protein provides a confirmation of the simple metamorphosis effected by hydrogen, due to its combining force, with carbonate earths when water is brought into electric vibration by sun light and heat.

Mixed Earth Protein. The grape vine grows on calcium soil which, in addition to calcium carbonate, also requires phosphate, hydrochloride, sulfate and silicate of calcium, potash and magnesia. Those substances are found combined in its protoplasm, i. e., in grape seeds. The following proportions appear in the ash components of grape seeds: hydrochloric acid 1, silicic acid 3, sulfuric acid 6, phosphoric acid 59, potash 71, calcium 84, magnesia 21. This proves that a richer earth substance produces a more complex form and a greater growth, note how great the distance is between the grape vine and the lichen of potash tartrate, which is produced by calcium carbonate only.

The red currant bush, so similar to the grape vine, teaches us that the plant form obviously depends on the mineral components that work together. The seeds of the red currant, however, lack *hydrochloric acid* wheras all other ash components of the grape seeds are present. Only a very slight deviation of the first mineral combination is required to cause an immediate change of parallelogram of forces, even if all other factors, i. e., light, heat and moisture, are equal. A bullet also misses the target by far even when the angle is very small by which the barrel of the marksman deviates from the straight line. And if only one-twentieth part of the required gun powder is used, the bullet will drop to

his feet. That is to say, if powdered rock substance in the form of lava mud exists and a deluge comes down on it, grape vines will grow up. But if only a little morning dew moistens the unbroken rocks that otherwise contain all substances required to produce a grape vine, only a little powdered mud in the form of phosphate and tartrate of potash-calcium can be moved layerwise over one another and only a miserable *lichen of potash tartrate* arises.

The grape vine of Paradise from the deluge mud, the licorice shrub from the Volga mud, the spiraea bush and the pasture herbs from the Orinoco mud, 50-fold grain yields from the Nile mud — all prove that the calcium-containing mountain debris alone, if it is sufficiently loose and porous, produces prolific plant growth without animal manure but with the aid of water and atmospheric nitrogen.

The Nile mud, in particular, teaches us to esteem the value of the sedimentary calcium layers in which carbonate, sulfate and phosphate of calcium and magnesia are united with silicate of clay earth-potash. As on the Chincha Island (Peru) a 200-foot-high guano layer proves the original height of the primeval sea, so do we also find in the Nile Valley a 200-foot,high clearly *layered* sand cover in the form of *mineral guano* or earth protein that was deposited by the sea. This guano layer lies over mussel limestone also deposited by the sea. During August and September the waters flow down from the mountain range which rises more than 6000 feet; running parallel to the Red Sea. When these waters affect the 200-foot-high mineral guano, the potash-containing feldspar mountain debris mixes with the calcium carbonate of the Nile Valley sand and in this way northern Egypt will remain an inexhaustible grain field within the foreseeable future. It only depends upon us, if we want to be equally as well off as the Egyptians.

We already know, after we have had to admit the metamorphosis of wood ashes into clover, that the creative power of the sun and of water is not restricted only to the Nile Valley, the Volga Delta and the Hwang Ho and Yangtze basins in China. Neither is there lack of physical explanation for the change of wood ashes into clover after the stages of development have been elucidated through which the calcium carbonate passes from calcium oxalate into oil substance.

When plant substance is burned, 2 ammonia NHHH, by the addition of 3 oxygen O, is changed into 2 nitrogen and 3 water. Every hydrocarbon CHH is similarly transformed into carbon dioxide and water by 3 oxygen. Consequently, if we take leucine as a basis, 2 leucine with 33 oxygen will change into 12 carbon dioxide, 13 water and 2 nitrogen.

$C_{12}\ H_{26}\ NN\ O_4 + O_{33} =$
12 COO, 13 HHO, NN.

When the electrolytical sun power again dissolves the 33 oxygen, which have served their purpose in the oxidation process, out of the combustion products in the form of hydrogen peroxide, the original power equivalent in the form of 2 leucine is then again restored.

$C_{12}\ O_{24}, H_{26}\ O_{13}, NN, H_{92}\ O_{16} - 33$ HHOO $= 2\ (C_6\ H_{13}\ NOO)$.

The original cyanogen CN or its equivalent, i. e., the leucine which originated from calcium carbonate, water, atmospheric nitrogen and sunshine, is in fact welded together with earth sulfate, the mysterious *protein* of the older generation of chemists. It corresponds in all rerepects to what is considered decisive for protein substance, particularly with regard to the following three main points:

1) At dry heating it supplies oil of *ammonium* carbonate.

2) When left to ferment in liquid solution with sulfate and phosphate salts, the paired leucine supplies: lactic acid, propionic acid, propylamine, carbon dioxide, hydrogen sulfide-ammonia and tyrosine.

3) The separation products of the protein substances appear in animal secretions as uric acid, urea and guanine. All these originate from the blood albumin or blood gelatine. It is a known fact that all gelatine produces gelatine white called leucine. Actually, *gelatine* must be imagined as a larger group of leucine molecules united with sulfate salts.

Under such conditions, however, leucine must be recognized as a "miracle flower" blossoming from calcium carbonate rock, water, air and sunshine for the benefit of all people. We only have to put the ashes at the disposal of the sun and water and they again turn the ashes into living protoplasm whereby the oxidating substance, oxygen, is removed.

Leucine has flowered from *earih, water, air* and *fire*. These four elements of Aristotle are, therefore, no fable or fairy tale. It is my opinion that when we are dealing with carbonate, phosphate, sulfate and chlorate of calcium earth, magnesia earth, potash, silica earth and clay earth, then without a doubt we are dealing with *earth*. In addition, there is the water that falls down from the heavens, the air with nitrogen that rests over the earth and penetrates the soil, and, finally, the fire that radiates from the sun and holds the hydrogen in vibration, oscillating between sun and earth, which is brought down to the earth by the meteors when they fall as a *witness from heaven* proving that it is truly and certainly this etheral gas that causes all *mobility* and *motion*.

Thus common sense, without machines and artificial hypotheses, has recognized the truth for thousands of years. It is a kind of air, a wind, that brings to life the apparent dead rock and bones of Mother Earth when moistened with water in the sunshine.

It is recounted that 2,500 years ago the prophet Ezekiel was set down "in the midst of the valley which was full of bones . . . (and) they were very dry". They only *appear* so. The ashes of dead trees turn into clover. "Thus saith the Lord God; Come from the four winds, O breath, and breathe upon these slain, that they may live. . . . Son of man, can these bones live?" (Ezekiel 37: 1-9).

Further Variations. In Denmark the oak and beech forests disappear and are replaced by coniferous trees without being sown. In France, in the proverbial non-fertile Sologne (Loire district) a barren sand field was sown with fir and common pine. After 15 years when they started to clear the thick trees they found young oaks between the pine which had not been sown. Further! In the Canton of Grisons and in the Jura mountain chain in Switzerland there were many larch trees *(Larix europaea)*. Slowly but surely the pine and the spruce are replacing them *without* having been sown. In Switzerland generally the red beech takes the place of oak, pine and birch, also *without* having been cultivated. In Prussia the pine supersedes the oak and birch forests. In Russia the reverse takes place. There birch and oak replace conifers.

On June 7, 1885, I found on the primeval granite mountain near Sarabraaten (one mile from Oslo), birch *(Betula alba)*, fir *(Abies excelsa)*, pine *(Pinus sylvestris)*, and ash *(Sorbus aucuparia) all together* with the roots horizontally exposed creeping around the broken-up pieces of granite and the ash and pine in several places arose from a *common* root. All these types of trees, therefore, form their protein from the constituent parts of the common granite soil which we again find in their ashes. At Sarabraaten geologists and physiologists can finish the equivalent of several school terms within two hours. There one has the feeling of being a contemporary of the earth formation. One can see how the granite glass flux, while slowly cooling down and crystallizing, mechanically split up into its three main constituents, *quartz, mica and feldspar*. The processes show that the calcium sulfide of the feldspar oxidized into gypsum and that the calcium, magnesia and soda absorbed the carbon dioxide from the air.

Beech, oak, birch and pine in total contain 0.1% sulfuric acid and 0.02% soda. Further, beech and oak each contain 0.03% phosphoric acid and 0.01% silica; oak, birch and pine each 0.02% magnesia; birch and pine each 0.02% phosphoric acid and 0.03% potash. Special deviations in the ash content of beech, oak, birch and pine are set out in sequence below:

Phosph. acid	0.03%, 0.03%, 0.02%, 0.02%
Silica	0.03%, 0.01%, 0.01%, 0.04%
Potash	0.09%, 0.05%, 0.03%, 0.03%
Calcium	0.31%, 0.37%, 0.15%, 0.13%
Magnesia	0.06%, 0.02%, 0.02%, 0.02%

Accordingly, the various types of wood have in common: 0.02% phosphoric acid,

0.01% silica, 0.03% potash, 0.13% calcium, 0.02% magnesia. 0.1% sulfuric acid and 0.02% soda.

If the proportions are changed by the growth of pine, the *protoplasm* for beech, oak and birch deep in the earth can be created by the addition of calcium phosphate, magnesia and potash. The result is that during the healthy growth of a pine, a young oak tree springs up from one of its roots. This is a very normal and common occurence. If we venture to dig out such a beautifully grown young oak found in solitude in a pine forest in order to plant it in our garden, we shall dig in vain. We dig one foot and two feet and even deeper. The underground trunk is in no way connected to the visible trunk. Finally, we find that the young oak springs directly out of a pine root. On the other hand, if the potash and magnesia as well as the phosphoric acid have been consumed by beeches or oaks, a potash- and phosphate-impoverished salt solution wanders out of the moist depths through the roots to the surface. However, if this changed protoplasm meets with normal sap, it will be rejected and then it automatically branches upward in deflected direction in order to turn into pine.

Since I wrote this six years ago, I have always looked for such metamorphoses whenever I have walked through a forest, and never without result. The most frequent were the changes from pine into oak but it seems that many people do not wish to see this. The foresters are subjected to legal penalties if such changes occur in their district. The explanation given is that they have not given attention to pure seed substance when sowing.

As in Europe, so also in America. On July 18, 1889, Mr. Adolf Tafel of Philadelphia reported to me: "In the forests of the South Mountains (about 65 miles northeast of Philadelphia) we often see young trunks of the *Castanea vesca* and of the *Betula* shoot out of one and the same old root, completely grown together at their base. All the mountains and valleys in this location had been covered with a mixture of chestnuts and oaks, the latter being predominant. For many miles around, these oaks are processed into charcoal for use in the oldest iron foundries of the country. An elderly, very intelligent man who was born in that area and has lived there more than 60 years, assures me that chestnut shoots spring up from the majority of oak stumps and that this is the reason why about nine-tenths of the forest trees now consist of chestnuts whereas in earlier times the oaks predominated".

After such an experience with forest trees the transformation of smaller growths should no longer surprise us. A farmer in Mecklenburg, Germany, told me that barley grows out of rye when the fields are repeatedly mowed before the rye blossoms. On the other hand, if the soil is poor, bromegrass frequently springs from the sown rye. This fact is conceded by agricultural professors but their explanation is that the seed was not clean; that the rye seeds for the most part have not germinated but only the bromegrass seeds which were mixed in. In the meantime I hope that after attention has been more generally directed to such mutations they will be seen in a different light.

In the *Chemiker Zeitung* of January 22, 1890, a Gustav Weissmann reported on *ignition of piled-up greasy iron shavings*. The suspicion was expressed that microorganisms could have ignited the oil of the iron shavings. Mr. Weissmann did not seem to know that metallic iron, when exposed to the atmosphere, chemically unites oxygen — a process which results all the easier with air-containing spiral shavings. The fact that such oxidation produces *heat* is a fundamental fact of chemistry and it is also known that created iron oxide can be reduced to black ferrous carbonate by hydrocarbons such as oil. I should like to repeat that the *wandering* and *alloying ability* of the hydrocarbons represent the basis for the possibility of the creation of the entire plant world. The self-ignition of a haystack with insufficient airing is based on the same principle.

Forest Plants. The constant metamorphosis of the protein of fallen foliage and needles into moss and even new forest plants with a varying blooming time in relation to heat, light, irrigation and changed air humidity of the progres-

sed season, merits serious study from the new point of view.

If all perennial plants which bloom and wither and die off down to the stem had their own roots, we would not know at all, with their great numbers, where in the earth there remains a plant to serve the subsequent plants. In reality, various plants stem from a *common* root, analogous to the pines springing from oak roots. How difficult it often is to pull out a plant by its root; how often must we pull off other growths by force. The truth is that the *perennials* in part die off completely. The plants bloom and carry seeds, the seeds *rot* and their substance serves other forms. Plants bloom and bear seed on the basis of the law of polarization; but they are not dependent on this for their propagation. It suffices when protein substance and earth are available. Out of this, during the proper season, the old form again grows up.

On May 31, 1885, in the Ladegaardso near Oslo, I dug *Convallaria majalis, Primula vulgaris* and *Hepatica triloba* directly out of the roots of various forest trees *(Abies, Tilia, Carpinus betulus, Corylus avalanna, Acer campestris, Alnus glutinosa, Sorbus aucuparia)* and, furthermore, Sorbus aucuparia (mountain ash) very frequently sprung up from the root of *Tilia parvifolia)* (linden). The geological formation of the fertile and mountainous Ladegaardso peninsula is layer-like, of very chalky trilobite and graptolite slate. whereas Oslo itself is built on gneiss earth poor in calcium.

Meadow Plants. Why do not the *same* kinds of grass as were there before, grow up out of the roots which remained behind after the first mowing? Why do completely new kinds suddenly appear which have not been sown? And why, when the meadows are cultivated and all seeds and roots destroyed, *rotted* in fall rain and *frozen* in winter — why in spite of this do the same plants grow up in spring that were there the previous spring provided we have spread liquid manure over the meadows? Because it only requires *protein* and *earth* plus a *certain kind* of moisture, sun heat and light, to produce a certain plant form.

Holly and *ivy*. If we walk over the Sonnenberg near Zürich to the "Känzli" we alternately pass through beech and pine forests with oaks scattered in between. Holly and ivy spring out of the roots of these trees. After I tried many times in vain to dig out the holly, I finally discovered that the holly grows up directly from the roots of the beech. This fact can be studied there on many thousands of trees. After this was completely clear to me I actually found a sample of holly at a height of about one foot above the ground branching at a right angle directly out of the above-ground trunk of a beech. A visitor from Berlin who happened to be with me took this sample, out of curiosity home with him, but because it was deprived of its tree trunk as source of nourishment it perished.

Lathraea squamaria. In quarries the roots of beech and hazelnuts produce a light purple growth with blue-red flower grapes called Lathraea which flowers in April. It is difficult to understand how, the microscopic seeds could find their way to the roots. And, indeed, the Lathraea does not originate from seeds but from tree root sap.

Monotropa hypopitys. This root plant flowers in July with straw-yellow flower grapes out of the roots of cut firs but also out of the substance of fallen fir needles. A different season, a different shape and color.

Broomrape (Orobanche polymorpha). Also in the hot month of July this small plant flowers in more than 30 varieties from the roots of phosphate-containing growths: *Lucerne, Melilotus, Trigonella, Cytisus, Phaseolus, Lupinus, Cicer, Coronilla, Vicia, Pisum, Lathyrus, Sarothammus, Eryngium, Trifolium, Artemisia, Petasites, Rubus, Berberis, Hedera helix* (ivy). They all create Orobanche and more than 30 botanists have coupled their names to new kinds of Orobanches. They vary according to whether the filaments are hairy or not, whether they grow in the bend or in the middle of the crown tube, whether the stigma is yellow, brown or purple, whether the crown is strongly or slightly bent, whether the crown lips are toothed or fringed, etc. How many types of humans would have been created if we were to distinguish them by mous-

tache and wiskers, hair and eye color, shape of nose, long and short, strong and weak upper and lower part of the body! Orobanche is in bontany the typical example of scientific *differentiation mania.* But Orobanche is also *the* example of the transformation ability of phosphate of potash, calcium and magnesia protein.

Erica. The blueberry *(Oxycoccus),* the huckleberry *(Vaccinium myrtillus)* and the cranberry *(Vaccinium vitis idaea),* in fact the ericaceae, azaleas and the rhododendrons originate from earth which is rich in silica and under the influence of *strong sunlight.*

On the Luneburger Heath in northern Germany where its kieselguhr creates a monotoneous flora, the silica of the heather protein is obvious. Today there are miles of heath covered with erica where the sea used to be in earlier times, shown by the mussel chalk found there, whereas in the northeastern part a thin layer of clay has settled over quartz. Clay is the precipitation from a clay salt and ammonium carbonate, and all clay contains calcium, magnesia, iron, manganese and organic substance, that is: leucine, protein, aniline, empyreus and others. The bee-keeping farms on the Luneburger Heath prove that its fertility is somewhat *one-sided.* Future generations will transform the heath into a paradisiacal garden if it is supplied with the substances it lacks: potash, soda, calcium and magnesia, in the form of ground granite rock mixed with gypsum and calcium carbonate. Wherever primeval rock (containing feldspar) is available, beech, birch, oak and pine forests will originate.

While the honey from the blossoms on the Luneburger Heath originate partly from the leucine material of the primeval period, elsewhere the ericaceae often originate from fir substance. Immediately at the base of a fir tree, I once found a wild rose *(Rosa canina)* growing. When I began to dig it out I had to separate its stalk from the fir root from which it sprouted directly. Incidentally, there is nothing miraculous about these observed facts, since firs and pines, and also the wild rose, are but metamorphosed rocks.

The mistletoe and the deadly night shade are metamorphosed roots and tree sap. When the trees lose their leaves in the fall, the bark substance, at the places where the fall rain gathers in the fissures between the branches, transforms into mistletoe protein, which in right-angle branching condenses the atmospheric nitrogen into ammoniacal leaf green. The organic substance must grow into some kind of form under the light; it is restless. But then botany books still teach that the birds displace the mistletoe seed.

All these metamorphoses are easily explained by the ability of leucine to displace and split as well as by the mobility and wandering impulse of all hydrocarbons which can be split not only from leucine but also from tannin and sugar.

Benzoic acid and leucine. The intensive way the hydrocarbons work can be readily recognized from the odor if we pick up some forest moss or rock moss or the roots of any plant with its attached earth and smell it. Since all odor substances of plants are founded on hydrocarbons, the smell of moist earth in the forest, garden and meadow is a certain proof of the mobile hydrocarbons, which, in addition, become noticeable by heat and inflammability when they happen to be combined in concentrated form, e. g., in horse dung, of which the inner heat can reach the stage of self-ignition.

It is well known that heat which is developed by the chemical motion of the hydrocarbons in the benzoic acid containing (or tyrosine-containing) horse manure is of such intensity that it is never spread on nursery beds by itself but is always mixed with dry leaves. The horse manure then imparts its chemical movement to the leaves and the soil which is spread over it remains warm for almost a year. After the substance has rotted, the decomposed groups of other plants form ready building stones in the form of phosphoric protein for new growths. This explains the success of nurseries and the failures when the plants are transplanted in unsuitable soil.

Plant Protein Becomes Animal Protein. After we have learned that the single components of all fruit-bearing plants leave phosphate of calcium, potash, soda or magnesia behind in their ashes and

that oils and ammoniacal leaf green develop out of sugar substance when the atmospheric nitrogen is drawn into the chemical union, the origin of animal protoplasm out of plants loses all its mystery. If plants can originate from sunshine, water, carbonate earth and air, why then cannot animals originate from sunshine and phosphate protein regardless of whether it is supplied by plants or by animals?

The Pine Louse. The juice of young pine shoots, rich in sugar bears the pine louse *(Chermes abietis)* in May. Several hundreds of these *sexless* creatures originate simultaneously from one bud. After energetic sucking of leaf green juice they grow up while they skin themselves several times, later form wings and finally, without mating, produce *lively young* which proceed in the same manner as the creative creature until finally, when the substance no longer supplies sugar, the entire swarm flies to the tender shoots of peaches, beans and other growth.

Since the young pine shoots do not appear until winter and are therefore not available for the egg-laying insects during autumn, all zoologists confess that the pine louse brings them to their wit's end. Of the other leaf lice which we see on thousands of plants, they still maintain that the last generation of the year is careful enough to appear in two sexes which *pair* and then lay *durable* eggs strong enough to withstand the rigors of winter. The zoologists say that they carefully wrap up part of these eggs in a kind of wool, hide some of them between the warmth-holding joints of the bark scales and some under the *fallen foliage.* (There is method in this madness!) So the zoologists can be right, let us say that the leaf lice which cannot withstand either moisture or cold nevertheless expose their hatch to the winter frost and the snow water in spring. It seems that they constructed this hypothesis from the example of the oak moth bombyx. Like the fruit tree moths, this oak moth indeed lays its eggs on an oak leaf, wraps the leaves up into a spun cocoon and, furthermore, attaches this with its threads to the fine twigs on which the leaves grow and often even to the nearby twigs. In this way the leaves cannot fall off or dry up but, fairly preserved, serve as first nourishment to the developing young caterpillars in spring until these hatch out and fall upon the young leaves which have sprouted in the meantime. A larger number of butterflies also follow this process as shown by their cocoons on the tree tips in January when all the foliage has fallen off. But the leaf louse, because it has no spinning glands, cannot be compared to a butterfly with its body substance of considerable size which it uses to fabricate a cocoon.

The Silverfish. If we burn a maple leaf it spreads an aromatic sugar smell and leaves behind a loose ash of phosphate, carbonate and silicate of calcium magnesia; these earths are therefore chemically united with sugar substance or cellulose in the maple leaf. All plant cellulose contains more or less phosphate and silicate earth protein. Those kinds with less sugar and beet protein still contain *calcium earth phosphate.* This also applies to *linen fibers* and to *paper.* Wool and leather contain ammonium oil phosphate.

If paper is left in a moist place the hydrocarbons start *fermenting* and become active, discernible by a musty smell. The phosphate compounds gather together during this process as they *always* do; the paper fibers then condenses atmospheric nitrogen into ammonia under the influence of the phosphoric acid and the hydrocarbons turn into oil; thus the silverfish are created. They are not green like the leaf louse, but a shining silver white because they originate in darkness, protected from the light. Silverfish cannot come into being in *dry* paper, for instance in books which are often handled, but can originate in damp linen, wool and leather as well as in moist sugar.

The Herb Thief (Ptinus fur) The hydrocarbons gradually become active also in dry foliage. If the owner of a herbarium neglects his treasures and does not disturb their rest, they will become alive behind his back and create the herb thief. With equal certainty, the herb thief arises out of mounted insects despite their being carefully sealed under glass. Disturbing by regular use prevents the re-

grouping and gathering together of nerve stearin. Since the herb thief originates in heat from immobile vegetable substances, it is also found in winter crawling on the walls of cowbarns, created in the warmth of the barn from the aromatic hay remaining in the cracks. Further, it develops from all kinds of root and herb substance, rhubarb, old fern root, couch grass root, and caraway that has not been moved in years, etc. All chemists, druggists and herbalists can confirm these experiences.

Ants. Because ants originate from oxalic acid CC HH O_4 and sugar C_6 H_{12} O_6, namely, from *paired* oxidized hydrocarbons, so unpaired hydrocarbons are deadly to them. Therefore, one never finds ants in meadows near *Spiraee ulmaria* (spiraic acid C_7 H_6 OO), cumarin C_9 H_6 CC, in horse barns (hippuric acid C_9 H_9 NO_3), near rotting fish (propylamine C_3 H_6 NHHH), fish scales (guanine C_5 H_5 N_5 O), lavender oil 3(C_5 H_8), valeric acid C_5 H_{10} OO, train oil (contains valeric acid), tar (contains toluidin C_7 H_9 N), or parsley and pastinaca (the oil of these garden vegetables is a compound of acetone C_3 H_6 O). From tannin-holding pine needles, ants orignate only after the tannin has been converted back into sugar by fermentation.

Corn borer *(Pyrausta mubilalis);* wheat beetle; grasshopper and locust — ". . . and when it was morning, the east wind brought the locusts". (Exodus 10 : 13); gall fly; earthworm; snail; *Phylloxera* in vineyards; feather lice; housefly — these are only a few of the further examples of metamorphoses from different kinds of protein.

All plants owe their impulse to grow to the phosphates (compounds of phosphoric acid with basic earth, alkalies and ammonia). Herein lies the endless formation ability of the protein and the wonderful variation in all organic beings. All ammonium phosphate is subject to continuous motion, regrouping, new formation and form-changing. It is and shows independent life and is as able to change as Proteus, hence the well-chosen name protein is given to all organic building material.

Soul and Consciousness

All our misery and bitter mutual hostility stemming from our convictions dissipate when we get to the bottom of the matter. Out of habit we have accepted without personal verification the pronouncements of others that we have heard since our youth. Therefore, the views I set forth as a starting point and any opinions differing from the usual, even if no harm is suffered, are unjustifiably attacked. Where persistent, zealous opposition dominates, common sense has no place, as they cannot exist side by side.

In persecution we are confronted with senseless and unfeeling machinery blindly crushing everything that comes into contact with its gears. Perhaps Lamettrie experienced something similar and thereupon wrote, in 1748, his work *L'homme machine* (Man is a Machine). When one is anxious to be spared from the fate of becoming a machine he must consciously keep his eyes open so as to avoid error, just as a sea pilot avoids the cliffs, i. e., he must not pursue life without the natural sense which serves as a compass. The natural sense. always instantaneously produced, is the result of the parallelogram of the powers at work. Thus, today it may manifest itself in a different direction than it did yesterday. In each individual case it finds its suitable expression, even if one seems to find his own judgement to be contradictory. What has changed is only the circumstances. The natural sense is the guiding God who lives within us. As long as this remains true, we do not sink to the level of a machine.

I do not pretend that the points of view expressed in this chapter should serve as a general rule. However, I feel the obligation to write about that which deals with the creation of living beings which we call "soul", without there being an agreement on what we should under-

stand exactly by the definition of soul. One would like to call it *consciousness,* another the *conscience,* a third the *perceptive faculty,* a fourth the *immaterial* which, in a mysterious manner similar to electricity, sets bodily substances in motion.

Yet when we examine the *immaterial* at closer range it does not remain valid even if we consider electricity, because electricity, magnetism, heat, light and sound cannot be felt without the existence of a body. They are but different kinds of motion which are always attached to something material, consequently an accessory to something physical a part of the physical substance, therefore something material.

When an electric discharge punctures a sheet of paper and forms edges on both sides, is it not compressed *air* working like a wedge pushed through on both sides because it does not have enough *time* to escape sideways, similar to the way a tallow candle can be shot through a board or a shot of water can burst a skull?

Electricity and the Nerve Functions. Electricity is an extremely rapid way of motion apparently overtaking space and time, but without succeeding since it still needs $^1/_{10}$ second to pass through a copper wire and circulate around the equator. The speed of light has been calculated to be 186,300 miles per second. For our purpose it would be interesting to know how fast electricity passes through our body. It has been said that our nerve functions do not depend upon electricity because the transmission of nerve impressions go six to ten million times slower than electricity, since nerve impressions travel approximately 120 feet per second. But this arguments under closer examination is not valid since a copper wire and nerve substance are much too dissimilar; the first is dry, the latter moist.

When electricity passes through a copper wire it finds no chemical work to do because copper cannot be decomposed further: It contents itself to fly from one pole to the other unless it is *hindered.* If the latter is the case, it narrows its way or breaks a joint so that it starts to work. The narrow pass or bridge is brought into such an intense vibration that it *glows* and *melts;* i. e., in a condition of undisturbed uniformity it spreads imperceptibly over a long length of material, but in a weak oscillation, by concentrating in a short length of material, it causes such an aggregation of vibrating motion that it becomes visible in the form of destructive heat. It is similar to the motion of water in a destructive cloudburst in contrast to gentle irrigation; and similar to insane delight in life's pleasures in relation to wise moderation.

When we consider the 120-feet-per-second travel of the nerve-conducting power, we again find that not enough consideration is given to *chemistry.* In the fruitless endeavor to evade this so-hated science, physiologists prefer to invent 100 devices and 200 hypotheses, but these fail to help them. They speak of *nerve fatigue* and nerve mortification when a nerve fails to react to an electrical discharge. Instead they should say: "There is no longer any nerve substance available, it is electrolytically decomposed and used up!" We must take into account how much chemical work electricity must perform on the chemical nerve substance while it travels the 120 feet per second.

Our nerves are not made of steel or copper wire; they consist of chemical, sensitive vitellin substance, i. e., a compound of leucine and nerve stearin. Since such material is rapidly and continuously subjected to strong electric vibrations by necessity it succumbs to a chemical splitting of an *unusual kind.* Under normal conditions a slow oxygenation occurs in the oxygen supplied by the arterial blood so that usually a longer-lasting uniform source of power is effected.

We all have experienced the shocking effect of events which have accumulated within an unusually short time. It all depends upon the *nerves.* Diderot and Dr. Cabanis reached this conclusion more than 100 years ago. The latter explained in a very clear manner in his *Lettre posthume et inédite sur les causes premières* that man consists essentially of nerve substance. We too shall convince ourselves of it at the proper place. Destruction which can be done to the material

of the nerve substance in the very shortest time is shown by the hair becoming white following intensive mental suffering. For instance, it is known that Marie Antoinette became white-haired during the night after the mob rule had condemned the queen to death by the guillotine. In a similar way, *typhoid fever* is a frequent equivalent of our cultural life by which natural emotion is suppressed in many ways. Apoplexy, with is deadly result as a consequence of anger or wrath, is a daily occurence. And the paralyzing effect of fright, fear and unrest affects man as well as animals, and there is no doctor or medicine which can help. There is but one remedy, *removal* from the zone of disturbance, the place and the things that cause grief and unrest.

According to Danish publications, a horse died as a victim of fear under the following circumstances. On Carnival Monday in 1885, a horse dealer bought a horse from a farmer and brought it to his stable which was located near a railroad track. When a train passed by the horse became somewhat restless from the unusual noise but calmed down afterward and took his food. The next day when the train passed again the same restlessness occurred. After the train had disappeared, however, and the engine whistles ceased, the horse again calmed down. But during the night an express train rushed by without a stop. The dealer was awakened by the night watchman who told him to go immediately to the stable. There the dealer found the horse lying on the ground covered in sweat. It was so paralyzed that it could not be brought to its feet by the veterinarian and several other men, and a few hours later it perished.

Constant worry "kills a horse!" It is natural that *outside* movements which act upon our senses require an equivalent in the form of *inner* movement which in organic compounds must follow in the form of electrolytic splitting. From this point of view nothing seems to stand in the way of considering our life phenomenon as *electrical;* in order to make certain that we are not in error we shall investigate further.

For *light* to pass through *copper* the copper must be exceptionally thin. Even then, only a reddish blue gleam can pass through. As soon as the copper is a little thicker, however, it stops the light as if by a wall and throws it back. The complete reverse is the case with *glass. Light* passes through glass, but *electricity* is stopped. The difference is so great that it makes no difference whether the metal is in pure condition or in oxidized condition because glass consists of purely oxidized metals (potassium oxide, aluminium oxide, silicon oxide, copper oxide, etc.)

The fate of *oxidized* metals is also experienced by the *sulfuric* compounds, e. g., the sparkling carbon disulfide CSS. This very effectively interrupts the movement of electrical vibration. Therefore, whenever sulfur and carbon are found together — as in sulfur-containing *hair substance,* in *wool* and *feathers,* in the sinews — the electrical vibrations will suffer a *delay* or *restriction.*

Such a characteristic restriction reducing the transmission of the electrical vibrations to a confined area belongs in a specific way to the compounds of *iron* with *electronegative* elements, such as sulfur, oxygen and carbon. Iron with oxygen according to the weight proportion of 6 : 4 produces magnetic ironstone, $Fe_6 O_4$. Iron with sulfur (1 : 2) produces pyrite. Iron with carbon (20 : 1) produces steel. All these iron compounds have a *magnetic* effect, i. e., they bring their surroundings within a certain sphere of activity into a condition of electrical vibration. Consequently, when they come into motion electrical vibration is created wherever they move. This is called creating an electrical induction current. Nothing moves *where the iron compounds do not reach.*

Since our blood contains a regularly-moving compound of hydrogen metal with carbon, iron, oxygen, *sulfur,* phosphorus and nitrogen in the form of red blood discs which contain hemoglobin, such a *movement of magnetic substance* (after *Faraday* declared hemoglobin to be magnetic) must result in an *electrical induction current,* not only in the walls of the *blood vessels* but also in the *nerve*

cords which run parallel to them.

(This I wrote in 1884. In September, 1889, Thomas Edison demonstrated a self-electrifying night lamp on the occasion of the Natural Researchers meeting in Heidelberg, Germany. It was shown that not only the electric eel, but all animal organs radiate electricity because regular electric current circulates in the nerve and muscle substance. An electric current in resting nerves can be perceived by a magnet needle whereas during their activity the current decreases. The switching on and off of the night lamp was effected by means of a small electromagnet.)

From this second point of view, therefore, no objections can be raised against electricity as an essentially effective factor in our life phenomenon. And if it is true that our nerve function, which has a reciprocal action with our blood circulation, determines our *entire power,* then it is evident that our spiritual power and spiritual activity are *modified* by the more or less magnetic blood constituency. However, because the blood and its composition, in turn, depend on our food, we finally arrive at the conclusion that it is the *stomach* which has a deciding influence on our mental disposition and that a healthy *soul* requires a healthy *stomach.*

If, above all, we give the *stomach* its due we shall achieve more than if we preach *morals* and *morality* in all tunes and take thousands of precautions against epidemic *diseases.* About half of all mental moods stem from the stomach. Was not *Spinoza's* sickly philosophy caused by poverty, cold and hunger because he earned his meager bread by cutting optical lenses in a poor attic in Holland and he had no feminine care?

The Stomach and the Nervous System. Those who believe they can explain the nature of the *soul* without taking into account the *construction of the body* and the *physical functions* will simply sink into a swamp from which they cannot be rescued. The fact that the *stomach* represents the center of all *spiritual activity* — the same as it is the center of our *body* — should not surprise us at all since anatomy teaches that our entire nervous system is connected to the stomach. The stomach cavity extends both upward and downward. Above, the stomach ends with the mouth, whereas below it extends into the intestines and ends with the rectum.

The intestines radiate in all directions in the form of fine tubes which are called *lymph vessels.* The walls of these tubes will sooner or later have to be recognized as nerve substance, the same as the walls of the blood vessels. The lymph vessels are the true sexless creators of the *nerve cords* on the one hand and of the *blood vessels* on the other. This fact is clearest in the eye where the lymph juice accumulates into vitrous humor which produces the retina skin and attracts the blood within this skin which condenses into the *optic* nerve. The lymph vessels are neutral or *sexless* and yet out of the chemical substance with which they are filled they produce the material for nerve cords and blood vessels bearing the character of complementing *sexes.*

When I stated that the stomach extended to the mouth, one should not take this statement too one-sidely because the fact is equally correct in its *reverse sense,* possibly even more correct. We are fully justified in stating that the mouth extends to the stomach or even further. We will use this point of view to study what appears to me as a *typical* history of development in order to obtain knowledge about the *moment of the awakening of the soul.* It concerns the history of the kangaroo.

When young kangaroos are given the teat by the mother they do indeed already have a mouth but not yet feet or stomach, no intestines, no rectum, no bladder; for the time being they can dispense with these organs. They enjoy pure, healthy mother blood and this changes into flesh, bones, lymph, sinews, nerves, etc. Only gradually, when the urea, present in the purest blood, starts to ferment, is the throat bag blown up by the liberated ammonium carbonate into a bladder-like shape. The ammonium carbonate cannot escape upward because the mouth opening of the young kangaroo has so intimately grown into *one piece* with the teat that a *blood effusion* takes place after separation and it is impossible to *again put him on.* Therefore, the ammonium carbonate seeks its way *downward*

while first a stomach originates by inflation of the throat bag and then the bloated stomach extends itself into *intestines.*

The intestinal tract branches into *lymph vessels* which continue the formation process of the tubes while they produce a piece of miniature intestine ending in an inflated bag. This inflated bag then splits into two almond-shaped, germ gland-like bags. In between these two bags a piece of miniature intestine again springs up which in the same way inflates into a bag-like shape after a short while. The formation of lymph ducts thus continues as the quantity of fermenting sap streams onward and presses forward.

From then on when the thus-created lymph vessels on one side meet the branches of the brain and spinal cord and on the other side are connected to the blood system by a larger container into which their contents flows, it starts to maintain regular contact with both systems *(nerves* and *blood vessels)* while it supplies both with nourishing substance. Therefore, only after the creation of *stomach* and *intestines* can the *nervous system* start to function due to the *lymph vessels,* and this results in feeling, sight, hearing, smell and taste.

At the time the kangaroo embryos are taken out of the brood bag by the mother and put on the teats they still have no eyes, they are still blind and deaf, the lymph vessels have not as yet developed sufficiently to effect a connection with sight and hearing nerves. (Cats, dogs and foxes as well as kangaroos are born blind.) After four weeks, however, limbs have been formed, the intestines and the bladder have reached the end pole of the spinal cord and start their function. Simultaneously the functions of hearing and sight begin.

This story of the development of the kangaroo seems to throw the necessary light on the general development of the animal nerve life because nature is not capricious and arbitrary but always acts by the same law.

I am inclined to believe that in all mammals the lymph vessels as well as intestines and stomach are formed only at the time when the urea, which is sucked in with the blood sap, begins its fermentation. Then the lymph vessels branch off from the intestines and unite with the nerve and blood vessel system whereby an electric current and a circulation of sap begins. These start the awakening of *consciousness* by observance of the outer world, thanks to a sense of *hunger* which is caused by the lymph vessels because these have the driving need to fill up without interruption.

Experience forces us to admit that our nerve functions remain dependent for life upon stomach and intestines.

In the stomach its periodic production of decomposition matter from transformed mucus substance functions *automatically.* So a certain amount of automatic functioning of the nervous system should not seem strange since it is dependent on the stomach functioning. In this respect it may not be denied that for a major part we are *machines;* but the questions remains: "Are we *purely* machines?"

In this connection we must remember that the magnetic blood stream and the resultant created electric induction current in the nerve cords have a diverging kind of motion inasmuch as the spiral fibers of the blood vessel walls stand at right angles to the direction of the blood stream. In the complementary condition resulting from these cross directions we can recognize an exceptionally strong *mechanical driving power.*

The Sexes, a Creative Masterwork. We now come to the question of the sexes whose *physical* opposites undoubtedly have oposite *spiritual* constituents. A *female* and a *male* soul are truly *opposites* and for this reason necessarily *belong together.* (Newton who was not married — which was ascertained during the autopsy — yielded to misticism.

The creation of the male and female sexes is a repetition of the creative masterwork and, in its simplicity, completely awakens our astonished admiration. It is attributed to the fact that one *entity* was divided into *two halves* and that each half endeavors to attract its complementary opposite half. From this stems the

general yearning *to seek* and the happy *finding*. All motion and all life are based on this.

Often this yearning strikes amorous men with blindness, so that Lee Mortimer wrote the warning: "For some girls a profitable divorce is their only aim in marriage".

The *physical* and *anatomical* differences between man and woman are in the altered *direction* in which the *germ glands* are located, and this is what determines the influence of sex on the mood of the soul. These glands branch off at an angle of 90^0 to the spinal column which in men are diametrically opposed to the brain. The same ratio of difference in direction is found both in the female Fallopian tubes and the male vas deferens. There is no other *essential* anatomical difference.

However, there are individuals who are masculine on one side and feminine on the other. During the period when I was a chemist I saw two such cases. It is easy to imagine why only a few of these cases become publicly known as it is considered a disgrace not to be entirely man or woman. Most such persons discover this condition only after they have faded on the female side — the woman matures first — and then find their masculine peculiarities developing. A case of this kind is referred to in the third book of Ovid's *Metamorphoses* where the personality of Tiresias is described. In his youth he did not know what he was, then he was woman for seven years and from then on he became man. Tradition says metaphorically: "He was struck with blindness." Generally the sexes are separated and this is very *pleasant*. What would the world be like without the natural urge *to please* one another?

It is difficult to judge whether the very first humans were at the same time man and woman (hermaphrodites) as occurs in exceptional cases today, and if a decisive separation was only brought about at the second generation, or whether the *hermaphrodites* have always been exceptions and that male and female couples formed the majority at the beginning of creation.

The general law of concentration and splitting teaches us that a salt solution of phosphate, fluoride, sulfate and chloride calcium, magnesia, manganese, potash, soda and iron formed a cohesive chemical union with that leucine which originated from ammonium carbonate and melliferous stone. This union split up into two groups which complemented one another. For a long time, however, these two groups remained united by a common tie and therefore stood at right angles to one another like electricity to magnetism, or like two similar electrical, diverging marrow balls of the elder. Due to this condition they were able mutually to maintain a living tension and mutually to guarantee a lively growth while each acquired the ability to attract appropriate substance by the power of opposites, thus bringing two humans to maturity at one time.

The relationship toward one another of these first couples was that of mutual completion whereas, due to earlier development, the leading role fell to the woman. An inaccurate tradition describes this as a seducing role. In reality, the magically attracting power which the female sex exercises on males consists of the magic which is part of the *resting pole*. The female germ glands are in a state of perfect rest, grown tightly to the abdominal wall, whereas the male germ glands are capable of a pendulum motion.

Wherever we look we shall always see that the factor which is relatively at rest will exercise the most attracting power. Is not the basic aim of all movement actually to find rest?

What else explains the wonderful attraction of family life than the offering of an effective protection against the excess vibrations that the world radiates upon us? Family life and our own *home*, the peace-providing walls of the house, these are all most sacred to us on account of the *rest* we enjoy there. The clamor of the world is broken as effectively as the motion of a rolling ball and the excessively vibrating and blinding sun rays are broken by a wall.

In the same way peace is given to a male soul when it is drawn into the sphere of activity and the circle of influence of a female soul. It is not, however, easy for either one to understand the

thinking of the soul of the other. What an error therefore to wish to make the various endeavors alike, thereby depriving themselves of the blessed charm of the *opposite*. The effect of the *forceful* power of opposites is again demonstrated by the greater attachment of sons to the mother and daughters to the father and also by the numerous circumstances when everything foreign has a magical appeal.

The singing birds throw their young out of the nest in order to raise the *cuckoo*. The naturalists tell the tale that it is the young cuckoo that does this. But it really is grateful that it is fed by is forster parents and would hardly irritate them by committing murder. If we put a goose egg with storks they will throw out the young storks and raise the goose. Bitches kill their young in order to suckle fox cubs which are given to them.

In 1885, a friend sent me an account of the following story: "Somewhere near Le Havre my uncle found four young foxes which could at the most be two to four days old as they were still blind. He took them home because the old vixen had been killed in the hunt. On his way he showed the pretty little foxes to the children of a friend and they were permitted to keep one. At that time there was a cat on my friend's farm which had had young a few days before and all its young had been drowned! Now, when the children in the garden wanted to play with the baby fox, the little thing began to cry and squeal. The mother cat heard this, and, believing that she heard her own young, she came and picked up the fox, carried it into her nest where her own young had lain and nursed it from then on. My uncle took the other three foxes home and laid them under his hunting bitch which had just had young; she also nursed the foxes and they drank with the three small puppies as if in competition."

This story of a mother cat and a bitch as nurse for young foxes is excelled in the following article which appeared in a publication on animals written in January 1890: "On a farm in Norway a sow brought forth 17 piglets last year. This number was too great for her to give suck to them all, so the farmer sought advice. His large farm dog had borne puppies the previous week and now lay on the barn floor with the two puppies which she had been permitted to keep. Four of the newly-born pigs were brought to the bitch and, although she had already started to leave her young now and then, she did not leave her place during the following eight days. Food was brought to her while the little pigs suckled, and she remained a faithful foster mother. When the pigs had grown somewhat she tried to leave them in order to follow the farmers in the field, but all four little pigs galloped after her. She therefore had to suckle them on the way before she could get rid of them. Mostly, however, the young pigs continued to follow her until she gave in and went home with them. The pigs are growing well and "Freia", the dog, is in good health."

A third example is a story describing how a cat on a ship sailing from New York to Hamburg whose kittens had been thrown into the sea, took young rats out of their nest to mother them. This example is so striking that it sufficiently explains how the human race was reared by female wolves, bears, lions, dogs and doe.

God's Creative Hand. The uniting force of opposites is indeed an irresistible one. From this point of view we are undoubtedly *machines* insofar as we understand "machine" to mean the adding together of single parts which, following the aim of the architect, must fulfill certain functions unresistingly so long as no hindering circumstances occur. But as sure as the spirit of its maker is embodied in every machine, it is also sure that the spirit of God, the Creator, lives in the machine which we call *man*. Even though the attracting force of *opposites* in the form of magnetism and electricity obviously functions within us, this does not make the presence of God dispensable. Neither do we believe that divinity idly looks on to see how his servant, electricity, performs its work with foremen and workmen.

I know there are mockers who say that we debase God to the level of a poor watchmaker, whose product does not function automatically but must be started continually, if we assume that God plays a part in everything up to the

smallest and last. But this comparison meaning that we "mutilate" God and throw Him off His throne by paying reverence to a piece of "part power" instead of to His Omnipotence is quite defective. Those who consider *electricity* as *original source* are still so far away from the purpose that they might as well stand at the beginning of the road.

It is true that electricity, with the peculiarity to vibrate with a force which transforms its surroundings into a similar condition thus making itself subordinate, does function exceptionally *fast*. But nevertheless, electricity needs time. It is God's *fastest* servant but it remains a submissive *servant*. Only God rules over time: as time only means the perpetual activity of God's power, one could say: *God* and *time* are *one*. Something so *totalitarian* can be accepted only by very few. Therefore, the Greeks endeavored to make the part-power electricity independent by giving their God Zeus a bolt of lightning into his hand.

On the basis that God and time are one, that God dominates time and exists everywhere simultaneously, it is not difficult to see His creative hand everywhere. Is *creating* in itself not something divine? God works and creates everywhere at the same time. God also lives in our body, in our soul.

But, of course, many will ask: How? Would God also live in rascals and hypocrites? How can He patiently and with even temper watch malice and vice triumph over morality and virtue? How can He permit people to be plagued by hunger, poverty, sickness and pain? — and let drought, crop failure and epidemics occur? And is it possible that He would also be present in the louse and in the dung beetle? For those having such an incorrect idea of God and the world, my answer is this: If all were to be fulfilled what we in our short-sightedness wish of God, then we would all be in a very uncertain position. We wish that wherever possible the earth would open up to swallow villains that God would come down in a thunder cloud to serve our selfish wishes. We do not perceive what a minute quantity of God's power is bearable for humans.

Regarding malice and vice on the one hand and virtue and morality on the other, I will not now examine in detail whether these qualities exist strictly separated in different individuals or whether every human being possesses a little of each, as seems much more likely. However, I am inclined to believe that an average good-natured man can be made so angry that he feels a malicious joy when his tormentor is repaid by another party. Are malice and malicious joy then so far apart?

In addition, I believe that in the majority of cases there are ways and means of keeping a distance from disagreeable individuals provided we value rest, peace and inner freedom sufficiently to pay for them with sacrifices if there is no other way. There is a saying, "No freedom is paid for so highly that it would not be worth more." By this explanation I do not mean to imply that every one of us does not have the obligation to bear a certain amount of trouble or inconvenience which pass within a reasonable amount of time.

Now comes the turn for the rascals and hypocrites, and I cannot help but wonder if we ourselves are not accomplices. Malice never goes beyond what our patience permits and beyond the degree to which we adopt a yielding attitude towards this malice. It is our business to defend ourselves. It is not sufficient that our sense of justice objects to insolvent arrogance, cruelty, hard-heartedness, dissimulation and hypocrisy and that we clench our fists in our pockets while putting up a submissive, hypocritical face. We must teach those rascals manners and they will no doubt improve because the malicious are always cowards. We are to blame, not they, if they continue their bad habits. If a malicious soul wishes to enjoy himself by tormenting us, we have the power to say: "So far and no further!" Moreover, we can always learn something from the arrogant fellows because they have a larger dose of the attribute of *self-preservation* than anyone else. Without the motive power for everyone to attend to the interests which he has at heart, life would be very unattractive. And if in this respect there were no *va-*

riety in the direction of taste, not everything would come out so relatively well as it seems to do in the overall. This does not by any means prejudice an improvement of the conditions of general human happiness. We only have to change the ruthless fight for existence into a *respect for others* while avoiding one another where interests appear to be incompatible. For the rest, those individuals who go too far should be compelled to display respect and there are plenty of institutions in the civilized world for this purpose.

As to poverty, sickness and pain — our ignorance is to blame for these in the majority of cases and not God. A vast amount of improvement could be made in this respect. Even so, pain is a direct proof of God's ruling hand. How otherwise could we know how to avoid the wrong road?

Now the louse and the dung beetle! Are not these creatures always symmetrically formed? Do they not also prove God's creative omnipotence? Is there anything impure in God's creation which has been built up out of only chemically pure elements? It is enough to recognize that the worm is also a proof of the divine creative power which uses the active elements for ever-new forming. Thanks to the restlessness which is inherent in hydrogen and to the indestructibility of the created substance, these incessantly unite into new forms with, so to speak, a divine *self-preservation motion*. Even though it appears as though one chokes and consumes the other, it is nothing else than eternal new forming.

The Physical Nature of Abstract Qualities. Although we are machines in many respects, there is not a man or worm or stone which does not contain the divine power of self-preservation. It is this indestructible power which is incorporated in all substance and which is expressed in men and animals — insofar as they have retained their natural feelings — in joyous living and in agreeable occupation. This I am inclined to consider as the divine or spiritual principle which cannot be separated from the physical.

In order to convince ourselves, however, that the abstract qualities also are of a physical nature, e. g., anger, rage, fright, anxiety, fear, joy, presentiment, conscience and will, we shall look a little closer at these apparently immaterial things.

First, the will! How much deception exists in this quality. Many times it is said: I *want* to do this or that; but if we were to analyze the point we would have to say: I *must* do this or that. "I *want* to set up a business." It is more accurate to say: "I *must* establish a business in order to make a living." "I *want* to marry!" No, you *must* marry because you realize there is no order in your household. "I *want* to go and console my friend." No, something *drives* you, you *must* go, otherwise you have no peace. Napoleon said: "I *want* to go to Russia." In reality he *had to* go; the Empire attracted him so forcefully.

If we *wish* to do something or *desire* something, it is because the object impresses us so overpoweringly that we are too weak to resist its magnetic power. Upon closer inspection our so-called "will power" appears to be something relatively *passive*. We are not so much its subject but much more its object. The question is usually resolved because we become truly empowered by the aim. Then we give ourselves airs as if we had performed a heroic deed and say: This is what I have achieved! Similar explanations apply to other spiritual conditions. All our feelings and sentiments end in beeing seized by the moving circumstances in our environment.

We feel or sense with the *ear* that a violin string has been set in oscillating vibration and that the surrounding air has taken part in this kind of vibration. Another type of vibration — essentially shorter and finer than the tone waves — that of scents, is perceived by the *nose,* and a kind of vibration in the form of light is sensed by the *eye*. The movement accompanying chemical decomposition is sensed by the *tongue;* heat and electricity vibrations on the other hand are sensed by the entire inner and outer *bodily skin*.

It is now certainly clear that we can only be moved by such vibrations that affect us personally and not by those which are absorbed and experienced by objects. This is like the effect on a wall which catches the movement of a rolling

ball or the movement of the warming and lighting sun rays. Therefore, *unrest, anxiety, fear* and *fright* remain unknown to those who live apart from disturbing factors. Similarly, *joy* is withheld from those who perform no good and who, therefore, meet no good.

There are, however, feelings or sentiments which cannot be included in this framework, and these result from outside influences and cannot be classified, e. g., *conscience* and *presentiment*. Both these conditions seem to receive their impulse from inside and not from outside; yet upon closer investigation it appears that they too are only the product of outside factors.

As to *presentimental ability*, the existence of which is generally recognized, this means nothing else but that an individual who is more acutely sensitive than another, experiences the vibrations of the earliest movements of any event of which others do not as yet have the slightest notion. Women, usually more sensitive than men, often experience presentiments. Such presentiments are unclear vibrations wandering from soul to soul like the tone of a wind instrument setting the corresponding string of a piano into vibration, thus producing a sound. There is nothing unusual about such vibration being set into motion by a strange activity of thought if we realize that the thought activity is connected to the nerve threads in the brain which tremble when a wave of blood passes over them — like a shaky footbridge under the feet of a traveller. Hence, presentimental power is also the equivalent of outside vibrations which, not withstanding their fineness and greater length, are electrically transmitted through the air. To have a presentiment is, in fact, to sense electrically, to sense quickly, to sense through the air, before the vibrating messenger has reached the form of *"experience."* This explains how, *electrically* moved, we appear to sense certain things *in advance*, whereas usually it occurs *simultaneously*.

Now, how do we regard our conscience? This, also, cannot be attributed to a purely *inner* source because its value is exactly, no more and no less, that which is given it through environment. Conscience is a product of education — partly by speech which we hear, partly by examples which we see. A tender conscience has had tender experiences; by contrary examples a conscience can be completely destroyed.

The Make-Up of the Soul. Like conscience, so the entire soul must be regarded. It too is the product of education in the sense that all things which surround and influence us — including food and drink, mountains, forest and sea — partake in its disposition. Our soul is composed of all things coming into contact with our body and with our organs of sense. We cannot manifest anything from within that has not previously been brought in; so we are entitled to say Whatever enlightens us will radiate from us in the form of the *soul*.

For example, one having the misfortune of growing up among people whose only aim in life is to amass riches will hardly, from the standpoint of coscience, *realize* that there are better purposes in life. He will too easily be convinced that the most important thing is to earn money and will act accordingly; and in the end, through no fault of his own, he will acquire a haggler's soul. Another person, surrounded with praiseworthy examples will regard the world in an idealistic way. He will be most astonished to discover in his daily life how much meanness can exist in one soul.

The soul is indeed what people make of it — a *material* substance. It is made up of real fibers which are spun, while a part of our brain substance changes into a kind of firm texture. Such a texture becomes the more durable the more the mentioned vibrations are admitted by eye and ear. Therefore, no expedient is as effective as frequent observation and speech in order to win and mold souls. I should point out here that speech is replaceable by gesticulations and signs so that many souls can also be formed or deformed by letters and books. On the other hand, the speech of nature: dashing of the waves and storm noise, clouds and thunderstorms, alps and steppes, an empty beach, or fruit and flower splendor, also have an overwhelming influence on the formation of the human soul.

The soul literally originates as a woven texture of brain because it is woven out of material brain fibers. It is true that the fibers are as transitory as the mucous membrane of the stomach but, like this membrane, they are also constantly formed anew in a similar way out of new substance as long as the old impressions continue and the first fibers are not displaced by other texture fibers which have originated from other impressions. In this sense our contemplation, judgment and action form the totality of our soul which is something constant and must be distinguished from consciousness. Temporary changes in direction and transitory modifications do not decide the issue any more than a bush changes its form when being tossed about by storms. In general, the soul of an adult is something uniform and one can depend on its automatic function whose characteristic always reappears no matter how other impressions may pass by or over it.

To explain this I consider that the chemical composition of our brain substance is the necessary foundation. The nerve stearin or lecithin in our brain mass does not cling together lump-like as a stearin candle but rather is dissolved in a kind of turpentine oil chemically united to ammonium carbonate. In other words, the nerve stearin is combined with the known leucine, a fact that can be deducted from the chemical reactions. Since the human brain changes into a kind of *leather* when treated with *chromic acid* and since such action of the chromic acid presupposes gelatine substance, the gelatine substance being based on leucine, so the leather-forming effect of the chromic acid proves the presence of leucine in the brain substance.

The anatomists who examine human brains call this process of transformation into leather "chromic acid hardening." For us, this possibility to "tan" the brain results from its content of *leucine*. Such leucine content reaches into the finest ramifications of the brain in the form of brain nerves and spinal cord nerves.

Even the glass lens of the eye, which must be valued as a fragment of the eye nerve substance, contains leucine; consequently, it too can be tanned or *"hardened"* with chromic acid. Also, the glassy body of our eye — as a further split product of the eye nerve substance — contains a solution of leucine in numerous tender sections similar to an orange. The leucine in this part of the eye can also be made visible by chromic acid or by lead sugar.

Everywhere we find traces of *leucine*.

The Cell Theory Refuted. If we remember that by mixing two substances the tension of each is diminished — for example, Wood's metal mixture readily melts in water, but volatile oils by themselves only boil above 100° C., whereas in water vapors they become volatile far below 100° C. — it becomes understandable that a union of nerve stearin with leucine at blood temperature can become as fluid as olive oil.

In injuries the contents of nerve vessels indeed flows out in the form of liquid *oil* which, however, immediately stiffens in the air. Such hardening is caused by the quick *oxidation* of the substance in the oxygen of the air. The nerve substance which spiders secrete from their spinning glands also instantly hardens in this way into fibers. The nerve stearin united with leucine obtains a higher potency of chemical oxidizing ability.

While the admittance of oxidizing oxygen results in a certain amount of hydrogen being separated in the form of water, a more compact substance, richer in carbon, remains behind. This remaining substance is called connective tissue in anatomy. Because of the functioning of such *connective tissue substance* interspersing the brain mass, a calf's brain appears (when placed in a bowl), not as an oily cake but as a mushy mass interlaced with fine tissue and covered with membrane. These membrane and fibers originate because the oil substance has been subjected to a partial hardening by chemical transformation due to the oxygen brought into the brain by the arterial blood.

The simplest way to understand this process is to let a bowl of linseed oil varnish stand uncovered overnight. The next day the varnish will be covered with a fine membrane. By attracting oxygen from the air a partial transformation of hydrocarbons into carbon dioxide and

water takes place. The water evaporates in the summer heat but the carbon dioxide chemically unites with the lead oxide dissolved in the varnish. This union, attached to the oil substance, now forms a kind of plaster or lead soap which covers the remaining linseed oil varnish like a coat. This effect of the lead oxide on varnish is the same as that of ammoniacal albumin on poppy seed oil and other drying oils, and especially on the brain oil.

With the understanding of this simple process the entire cell theory which has confused the minds for 225 years is thrown overboard.

If, for a joke, someone explains to a child that a cannon is made by taking a hole and pouring metal around it, the child will laugh at him. The experts, however, remain very serious when one of them tells the same story but in a different form when speaking of cells. Even today it is taught in anatomy that the mucus bursae (synovia) is a type of closed sack or bag, the shape of which is *adapted* to the adjacent bones or cartilage.

The true nature of the so-called nerve cells of our brain is best explained by the following practical example: If a drop remains at the neck of a bottle out of which we have poured varnish, its surface oxidizes into a *membrane* while it slowly slides down in the form of drops. Obviously, it is a membraneous *bursa* or *cell* which contains chemically *unchanged* varnish oil. Our chemistry-estranged cell theorists, however, with Virchow at the top, regrettably reverse the story, saying that a *cell* is required in the first place so that the oil of the varnish can be contained. This error would have been excusable in the year 1667 when chemistry did not as yet exist; but today it is *unpardonable*.

This unfortunate condition exists because the majority of medical men, even though they have taken examinations in chemistry, nevertheless are completely ignorant of essential chemical matters. *Schwann,* in whose honor was named the tender membrane enveloping the nerve oil, had no confidence in himself; he depend on the botanist *Schleiden.* Since Schleiden originally was a lawyer but not a chemist, Schwann did not choose a good guide. Schleiden himself stood on the shoulders of his predecessors who started with the *pores* ("the hole in the cannon") found in *wood cellulose.* Actually, these pores originate while sugar substance, in chemical union with earthy material (calcium, silica), at first groups spherically around a liquid in the form of *cellulose,* like the membrane around a drop of varnish. Because the cell content loses its water through the porous membrane, the membrane remains which encloses the earth protein in the form of crystallized oxalate, carbonate, sulfate, phosphate and chloride of calcium, potash and magnesia as well as sugar split substances, and leaves pores (empty membrane) behind.

Such a process takes place in tree barks since these are subjected to strong evaporation. This induced Robert Hooke, one of the co-founders of the London Royal Society and contemporary of *Newton,* to speak of "wood cells" in his book, *Micrographia,* which appeared in 1667, because he compared the porous elements of the plants to *bee cells;* he had no intention of doing any harm. After him, however, there were persons who wished that the expression "cell", which they greatly admired, be applied to all plant parts, irrespective of whether similarity to the bee cells existed or not. *Malpighi (Anatomes Plantarum Idea,* 1675) and *Grew (The Anatomy of Plants,* 1682) changed the expression and used the terms *vesicle* (utriculus) and *bladder.* Grew said that the parenchyma of the bark is similar, as to its conformation, to the froth of beer or eggs which is *fluid.* In his *Theoria Generationis* (Treatise of Growth, 1759), Caspar Friederich Wolff at least let the cell membrane originate from a clear glass-like liquid by a *hardening* process. However, he could go no further because at that time chemistry did not exist. After him, *Hugo von Mohl* confirmed the idea of the cell membrane, saying: "The *basic form* of the elementary plant organs is that of a totally *closed,* spherical or stretched small bladder *consisting* of a firm membrane and *containing* a dripping liquid." So we see that the "hole in the cannon" concept has persisted.

Schleiden then raised the *cell,* which

had then enjoyed first place for 200 years, to the rank of a independently alive, single creation by whose *piling up with others* the plant body originated. Medicine faithfully followed this heresy. The first one to pursue this direction, soon followed by others, was *Schwann,* who not only copied Schleiden but extended his theory to include *animal* physiology. He copied him so slavishly that he carelessly ignored the fact that blood plasm contains form-giving substance *without* being of cellular form. With a contemptible disregard for electricity (this general stopgap as he called it) he invented the term "metabolic power" as a substitute.

Even Naegeli, in 1844, still adhered persistently to the *cell* as the foremost conception and issue in physiology, although he pointed out that not only the *wall* (membrane) but also the *content* of the cell must be considered. But he completely deceived himself about the nature of this content because, accepting it as empiric law, he maintained that the *plant* cellular membrane consisted of the three elements, carbon, hydrogen and oxygen, whereas in contrast, he stated that the *animal* cell wall in addition contained nitrogen. According to Naegeli, physiology was split into two parts: the theory of single cells and the theory of the aggregation of cells. How paltry!

Nevertheless, my highly-honored tutor Alexander Braun stated: "It is an abuse that the word *cell* sometimes describes the cell with membrane, sometimes the cell without membrane, sometimes the membrane without content. As the content of the cell is its essential part — since it already formed a unit before the separation (!) of the membrane — we should consider this fluid content as the genuine cell." *(Observation on the Appearance of Rejuvenation in Nature, 1850.)* This flash of light in the dark unfortunately has not received the attention it deserves. The cell content has indeed been generally accepted under the name of "protoplasm", but it was explained that this belonged to the field of physiology and not to histology. As long as the content of a spore without membrane escapes in a fluid state, it was of no concern to the *histologists.*

Charles Darwin, who was also a medical man, accepted the view that every cell originated from another cell. According to him the miracle of created life consisted in the origin of one primeval cell. It was then the task of the scientists to let grass and herbs, shrubs, forest trees, flies and maggots, birds and fish, crocodiles and elephants, tigers, lions, monkeys and humans be developed from this first cell. The entire world of scientists today still stands firmly by this view. It remains blind to the fact that the fluid albumin of the blood and lymph shows no cells, but *produces* cells. *Neither the stomach juice,* the bile fluid nor the pancreatic juice contain any forming constituents (cells) but yet are, nevertheless, of a very lively activity.

In the same way, cellular pathology, which places the center and cause of *disease* in the cells, stands in contradiction to the cell-free poisonous vaccine lymph. The causes of all diseases lie much more in the chemical composition of the formless saps of the lymph and blood serum and we must unconditionally return to the old humoral pathology.

If we now compare all that has been said by Schleiden, Schwann, Naegeli, Darwin and others on the origin of cell membrane, it appears that not one of them has discovered the union of the protoplasm with *oxygen* as the cause of its formation. Yet it is so obvious that the mineral constituents are the deciding factors. This can be concluded from the hardening of liquid mercury when it chemically unites with oxygen and from the membrane that originates on chalky water when calcium unites with carbon dioxide. Clearly, the minerals must be the determining factors.

On this basis, the membrane that played a part in the furrows of the fructified egg yolk as well as in the architecture of the brain mass, become comprehensible as simple *oxidation* products. Their origin is due to the oxygen of the arterial blood which oxidizes the ammoniacal leucine and the ammonium stearin phosphate (lecithin). This explains the activity of the brain, especially the thinking process, as a physical-chemical function which literally is identical to the creation of fibers in the brain web, analogous to textile

fibers being spun. While we think, substantial pictures are being created. It is within our power to fix such brain fabrications permanently in the mind of ourselves and others if we aim to do so at a youthful age through the proper physical processes.

In photography, for instance, a coat of gelatine, which has been made sensitive with silver bromide and chloride or with chromic acid, undergoes a physical shifting of its chemical constituents by exposure to light. It will then not be difficult to recognize that under similar conditions our brain gelatine retains a bodily picture of visible objects. Only in this way does it become understandable that the painter Horace Vernet was able to give a portrait to a visitor the day after producing the portrait according to the picture which had remained in his brain. In the same way, a vibrating tympanum, similar to a vibrating monochord, imitates a biconvex lens which creates the impression (photo) of the sound in the brain region controling the acoustic impression. Can we not in memory hear the *timbre* of a voice? Our brain is the most perfect sound recorder.

The most effective way in which these two main factors in physical idea formation (seeing and hearing) are applied in human education is through *pictures* and *stories*. Therefore, by example and education we can implant justice and love to further virtue, humility, piety, confidence, courage, valor, enthusiasm, fine art and activity. But by the same means we can implant arrogance and presumption, ingratitude ambition to rule, cruelty, dissimulation and hypocrisy.

Are we not therefore altogether responsible for the consequences of the incorrect ideas we implant in the heads of the growing generation? And should we not carefully question ourselves as to the consequences of our educational methods? A greater amount of time should be spent on the teaching of practical knowledge which furthers human happiness. This would especially include chemistry as it frees us from superstitious fear and from agonizing ignorance and gives us the indispensable key to the understanding of all processes in nature.

Chemistry is the good fairy working quietly and without fanfare; she only wishes to be a helper, always prepared to *show* the way or to *try and find* the way if she is not blindly rejected. *Chemical knowledge* is an expedient making it possible *to be happy at little expense*. And how easily and pleasantly we can obtain this knowledge. How quickly we can learn the properties of sulfur, phosphorus, nitrogen and chlorine, of carbon, hydrogen and oxygen and potash! This is practically all that is needed; all the rest is only analogy and combination. Chemistry is easier to learn than, for instance, the notes of piano music. Only after we are as familiar with the main chemical principles as we are with the alphabet and the multiplication table can it be the important means of attaining earthly happiness for which it was created.

Consciousness, an Inner Light. That which we call consciousness I imagine to be some kind of inner light produced by chemical consumption of our brain substance. Such consumption essentially requires a union of brain fat with the oxygen brought to the brain by the arterial blood. The products of such a chemical effect are carbon dioxide, water, ammonium phosphate and urea thrown off by the venous blood. If, however, at a certain time the use of brain substance exceeds a certain limit, the created combustion products cannot be removed fast enough by the slowly flowing venous blood: They then obstruct a quick further oxidation of nerve substance and clear consciousness is heavily impaired. Such a condition occurs, for instance, if the same part of the brain is continuously used in a monotonous manner, as by listening to a long, poor lecture. If you study the faces of the audience on such an occasion, you can clearly see how here and there consciousness "slumbers."

Consciousness also disappears when the supply of oxygen to the brain is blocked, therefore when breathing stops, as in drowning or strangling or when certain types of gases are inhaled which do not contain free oxygen (lighting gas, sewer gas, hydrogen sulfide, carbon dioxyde).

If we cut the blood vessels in the neck

of a cock, the cock will become unconscious because instead of going to the brain the blood drizzles away. If we lay the bird in a bowl, assuming that he is dead, he can regain consciousness again as its blood coagulates fairly quickly, so the wound closes and circulation starts again through many anastomozing small capillaries. Because its plumage protects it against quick cooling off, the cock which we believed to have slaughtered, wakes up as soon as oxygen blood is again led to the brain. He then beats his wings, stands up and, to the fright of the cook, jumps out of the bowl.

During a war soldiers lose their consciousness in the same way by loss of blood; and if the wound has closed by blood coagulation and the other parts of the body share their blood with the brain, consciousness returns. A fierce blow on the skull also causes unconsciousness. This is probably caused, not so much by the *commotion* of the brain as by the loss of blood from the burst capillaries. The dispersed blood cannot find its normal return route; therefore, it fills up all cavities so that no arterial blood can enter. Only after new capillaries have been formed through which the blood can flow, does consciousness gradually return with the new supply of arterial blood.

Consciousness disappears as well if we load our blood with *alcohol* because this claims all inhaled oxygen for its oxidation so that nothing remains for the brain. Consciousness returns only after the alcohol has been oxidized by violent breathing (snoring) into carbon dioxide and water and has been exhaled in this form.

From these explanations it is obvious that consciousness is not something that exists independently but is only a *condition* demanding the oxidation of the brain substance.

Wakefulness and Dreaming. It seems to me that the true difference between being awake and dreaming is the fact that the dreams we dream while awake are woven out of *flesh,* while the dreams we dream in our sleep consist of *gas.*

During the day we are not able to retain an image of thought which we have created beyond a certain length of time; if we try to do this, *we fall asleep* as equivalent of the overstraining to retain the blood flow. The longer the blood is held at a certain location, the more it loses its oxygen and becomes loaded with carbon dioxide so that the nerve fat ceases to oxidize and to function. While sleeping, such an overstrain does *not* take place; blood circulation continues normally although it is more concentrated in the abdomen and the lungs in order to aid the formation of new nerve substance by separation of carbon dioxide. During sleep expiration exceeds inspiration to such an extent, that the bodily warmth must be retained by bed covers because oxidation does not create sufficient warmth to replace the loss caused by radiation as long as the body rests.

If during sleep the eye and ear, nose and tongue, as well as feeling do not use up any arterial blood because the blood circulates in the *abdomen,* this does not mean that the brain substance is completely passive. Its reason for being is simply growth and motion: to produce. I believe that even though no hydrogen oxide HHO, or carbon dioxide COO, are separated from the brain mass during sleep, it is possible that phosphine, will-o'-the-wisp gas, is separated. While this takes place tissues will, of course, originate which do not contain one thread of flesh. The elastic and active will-o'-the-wisp gas, timeless because it does not oxidize, expands and bridges crevices which would terrify our slow, daily frame of thought. It seems to me open for discussion whether it is not the truth if in our dreams we compose with ease and are spiritually rich; whether the gaseous or spiritual substances are not autocratic in our dreams and, freed from daytime chains, walk in domestic fields. The frequent idea that in dreams we are freed from gravity and float over the earth, also indicates the light phosphine type of gas PH_3.

Phosphine frequently appears at the temperature of blood heat in such cases where finely broken phosphate earths come into contact with oil substance and gelatine-supplying substance, so that many a dream could be attributed to the skull because it contains these substances.

The Law of Life

Originally, physiology meant the science of natural *growth,* and the laws of growth do indeed unconditionally harmonize with the basic law of *life*. We must know this law or all our steps are a groping in the darkness; hence, we must repeatedly ask ourselves: *What is the law of life?*

One hundred-fifty years ago *Cabanis* stated the law of life when he said: *It is the tendency of the physical world to aim at union with opposites*. He could give no further details because chemistry at that time did not as yet supply a sufficient basis. Today, however, we have finally arrived at this essential foundation and are able to decipher the simple law of life from studying the list of numerous patents for aniline colors and aniline compounds.

The more hydrocarbons are added to the basic substance of honey scent C_6 H_4, NHHH, the more color shades and properties occur. Which means, that the hydrocarbons embrace one another directly, when the first small basis is present, which clings to ammonia NHHH, and when dehydrating chemicals are applied.

This is the same principle that I have developed about the electric power of sun heat clustering together ammoniacal or protein substances, which in turn separate again when the power of the sun *ceases* to wield its influence. Why then do the aniline colors of the chemists also not separate?

In a concentrated and crystallized condition the aniline colors remain intact because the chemists use the little trick of adding sulfuric acid, hydrochloric acid. iodine, acetic acid, and others. However, when exposed to the oxidizing influence of the air in a diluted condition, this trick no longer works. Then all aniline colors bleach and separate into ammonium sulfate, carbon dioxide, water and nitrogen.

As long as *concentration* and electrochemical *cohesive* power exist, the hydrocarbons cluster together according to the law that carbon attracts the electrochemically opposite hydrogen and that when hydrogen molecules disperse, new carbon groups are again added. Sodium oleate and common *soap* are practical examples of such a cohesion of the hydrocarbons under the influence of a chemically-uniting earth substance, which has an active zone covering 18 hydrocarbons.

The clinging together of soap bubbles confirms the prevailing law. If we take the soda out of soap by means of acetic or hydrochloric acid, then no foam or bubbles will appear. With soda as well as with ammonia the oily compound becomes soluble in *water* and in this form can easily flow to other places. When calcium earth or calcium salts or manganese or iron or magnesia salt is added, it instantly forms into an inflexible, insoluble and sticky plaster-like compound. Without this *cementing* property of the earths the great creations (trees, bushes, herbs, mammals, birds and fishes) could certainly not exist.

The following law of *growth* or *physiology* of human beings is also based on the fact that the hydrocarbons are *held together* by a certain quantity of earths and ammonia. In *pathological* conditions, the *reverse* is the case, i. e., the hydrocarbons *disintegrate*. Accordingly, chalk water, calcium formate, potassium carbonate, potassium manganate, etc., by their tensional power can stem the progress of tissue decay, as for example in cases of diphtheria.

This further explains why we can see substances *decompose* when the acids (formic, acetic, propionic, lactic and butyric acids — which originate from the oxidation of the stomach nerve substance by the artery oxygen) extract the earths (calcium, magnesia, manganese, soda, potash) out of the food after this has been masticated. The same process is caused in the lung tissue by lactic acid. Under these conditions the fat and flesh groups then decompose into leucine, tyrosine and earth salts. However, these split products reunite when in the duodenum the ammoniacal indole of the pancreas gland together with the soda soap and Glauber's salt soap of the bile effects their union.

We can now imagine how (like a magnet seems to arrange the loose iron filings in centrifugal direction into rods) sodium or calcium due to their *specific*

gravity, and hydrogen-azotide (ammonia) due to its inborn electrochemical *tensional dominating power,* play decisive roles because they can give direction in a tangential straight line to a certain number of single hydrocarbons. With this explanation we have considered but *one* side of the process.

Not only must we understand that the electronegative nitrogen with the *opposite* positive hydrogen, the hydrogen with negative carbon, the carbon again with hydrogen, and finally, the hydrogen with the oxygen, chain together in a horizontal line, but, *what is much more important* (since it seems to contain a contradiction), we must also be able to explain how it happens that *like* elements, apart from hydrogen, link together, i. e., carbon uniting with carbon, nitrogen with nitrogen, phosphorus with phosphorus, sodium with sodium. Such reciprocal attraction between *like* elementary substances surely seems *contradictory* to the law of opposites. Nevertheless, the diamond which consists of pure carbon, crystallized sulfur and other elements, teaches us that apparently a growth of atoms takes place by union with their equals. What is the answer to this puzzle without impairing the law of attraction between *opposites?*

The problem is not a minor one. Detailed answers are in the *Chemical History of Creation* section of this book.

From the regularly-recurring similarity of chemical processes, chemists have long recognized the necessity of using as a starting point a *paired* arrangement of elementary substances in chemical unions.

Such an atom pair which is able *to split* under certain conditions was called a *molecule,* or a chemical building stone — and rightly so. Until now a theory was missing to make the nature of the facts conceivable. The process itself becomes understandable from the example of a double chlorine molecule Cl, Cl in chemical union with a double benzol molecule $C_6 H_6$, $C_6 H_6$, splitting into benzol chloride $C_6 H_5$, $C_6 H_5$, Cl and hydrogen chloride (HH Cl). However, the split products immediately pair again into double molecules, so that the following figure applies to hydrogen chloride (hydrochloric acid)

ClHH
H H
Cl
Cl
H H

This contains the contradiction that a *condensation* results while no *separation* occurs as equivalent.

We should therefore explore where the equivalent is to be found. This poses no problem for the hydrochloric acids as such because from the above figure it is clear that 2 chlorines are located between 4 hydrogen. Therefore, the equivalent is a *destruction of space.* Now, how about the double chlorine molecule Cl Cl and the double carbon molecule CC?

In order to arrive at a necessary understanding of all growth and decomposition I herewith sum up the fundamental principles of my theory on *cosmogony.*

Let us assume that by strong force I break into half an absolutely symmetrical object (such as a sphere or a mathematical point which represents the ideal of a sphere because all parts of the periphery are equally far away from the center). Then I again bring these two halves together, but *reversely,* at the centers of the spherical surfaces — like an *hourglass.* It is clear that this inversion of the halves creates an entirely new form. It is this new form that we must imagine when contemplating the double atom or *molecule.*

In contrast to the original sphere, the new form is not able to roll in a ray-like manner in *any* direction, but can only roll in *one* direction, and that is in the direction of its *equator.* Let us imagine a double carbon atom in the form described. Because this is no longer of spherical shape it has the ability to stand on two surfaces, provided it is given a firm base for this purpose; e. g., it could stand on the corresponding surfaces of its equal.

We can therefore imagine a dozen carbon hourglasses standing exactly on top of one another so that our eye receives the impression of a column which at top and bottom ends in half spheres, whereas in the middle it appears to have eleven complete spheres.

Such columns must be formed when numerous similar forms of hourglasses float freely in a common medium. I shall give the *reason* later. The general correctness of the law of union of homogenous

substances can be recognized from the agglomoration which has taken place in quartz molecules, magnetic ironstone, calcium, slate, sulfide ores, etc. Why was it *necessary* now that such aggregation or accumulation of similar molecules should take place?

Upon inversion every half of an hourglass has become detached from its opposite half which had held it in symmetrical rest. From then on it reaches a free state. It oscillates and *vibrates*. Out of a state of quiet rest it has come to independent life which cannot terminate until the missing opposite has been returned. It endeavors to attract this.

Since, however, *single* half spheres of like form cannot exist, but only two inverted half spheres combined into a *molecule* (building stone), it is clear that as long as similar substance is available, complete columns can constantly grow together. These are *at rest* only in the center but remain *alive* at their endings. *Growth* (further addition) is required at these living "poles" which can only cease when the two end poles of the column join together like a snake which bites its own tail, analogous to the galaxy "worm".

Such enlightenment deserves to be admired for its simplicity. This principle reaches two goals at the same time. On the one side, it *brings to life* the spherical space, a lifeless thing, by splitting it into two halves and driving both halves into opposite directions until, reversed, they again are joined together and split into molecules. On the other side, it *dominates and controls* the unbridled life of the molecules by uniting their end poles through a turn of the circle. In this principle we recognize the basis of all physical growth, uniting the stars, the mountains of the earth, the animals and the plants under the same universal law.

This law says: The atoms created by splitting *again* split and are forced by the reversed direction of their halves to keep in motion in order to find their complementary opposites.

Without such a masterpiece of divine power to bridle the atoms by forging together their opposite halves, there would be no *growth* and no *life*.

We must cling to the conception of the half spheres united in the *hourglass form* as a *practical example* because such a conception corresponds to *reality*.

The double half-spheres or hourglass forms *exist* in large measure, so that our physical eye is able to see that which is inherently, invisibly present in the minutest germ cell — just as the rhombic-shaped structure of the atoms in the smallest mica molecule is shown by the rhombic form of the mica crystal. In connection with the double half spheres of organic substance, I wish to point to the following facts:

1) The red *blood discs* are concave on both surfaces. Therefore, two of the hollow half-spheres inverted, form the hourglass shape. If they are left undisturbed, their concave rims grow together, analogous to coins rolled into stacks. The creation of fibers as well as of capillary tubes is based on this principle. In the latter case the thin membranes of the biconvex hollow space disappear after the outer wall is completed because they are absorbed by the walls.

2) We again find the reversed construction of the half-spheres in the formation of the *vertebral column,* in fishes as well as in warm-blooded creatures.

3) The lengthwise extended half-spheres which we call *internodes* are also reversely placed on top of one another, imitating the growth of the vertebral column. We recognized the hourglass shape in bamboo as well as in jointed grass stems and they also prove the universal law.

In addition to the above, we must study the hourglass form from a *second* point of view.

If I divide a sphere into halves and both halves are rejoined so that the north pole and the south pole touch one another, provided the sphere is electrical, the electricity flows to the newly formed poles. The middle will be neutral but the two circular discs which were parted from one another will now function as newly-created north and south poles.

Because of the neutral nature of the *equator* a growth of *opposite* elements will follow sideways and, due to the difference of the poles on top and below, a *lengthwise* growth of *similar* elements

will result. But length and width will continue to endeavor to maintain an arched *joint;* consequently, the egg-shaped form of our brain and the rounded form of animal bodies.

If we consider the *lengthwise* growth it is evidently important from which side a similar molecule comes near to one of its poles.

Only the *opposite pole* which is able to restore the original integrity of the complete sphere can be attracted whereas, on the contrary, the *similar* pole is rejected. Since the rejected figure behaves in the same manner, it follows that both of them will shun each other and this results in *molecular motion.* If during such a movement one molecule has reversed its pole, it will attract the other pole. The latter will meet it half way with the same attraction. While in this way the *matching* pole will join up, a *group increase,* or *growth,* follows. This condition will continue as long as *electricity* is maintained in the molecules and formation substance is available.

The group formation from similar molecules gives us the picture of a chain of pearls in the sense that one pearl touches the other, but the beginning and end only consist of *half*-spheres. The electricity of the group will predominantly accumulate in the first and last half-spheres.

If it should happen that a *broken-off* half of another hourglass form gets into the active zone of one of these end half-spheres, this fragment would then be absorbed. However, since the end electricity passes over into the new molecule which has grown into a complete sphere, this will cause a change in the tension proportions of all single members of the group. Wherever the electricities are similar, the newly-created poles must change their direction and in this way the *group falls apart.*

The blood and nerve substance decompositions which are called infectious diseases are undoubtedly based on such processes. They can actually be transmitted by physical contact with decomposing protein material, but also by other influences of an electrical nature, e. g., lightning, excessive physical motion, tropical heat or emotional upsets can produce similar results. They are always connected with electrochemical splitting processes analogous to the fermentation phenomenon. Since the microscopic analysis of corpse tissues truly shows a splitting of the molecules — partly in the form of *broken pearl chains,* partly in the form of *crystal chips* — it was believed that these split products must be accepted as the *cause* of the afflictions and the *micrococcus* and *bacteria* theory was based on this.

The law of growth must now be studied in its anatomical consequences. In this respect the animal body gives us the same picture as the plant body. We reconize a circular grouping side by side of *opposites* and a vertical grouping one upon the other of *similar* material, thus creating the cylindrical form.

The snake, the eel, the earthworm, the caterpillar, the fat maggot, in their cylindrical forms correspond to the tree trunk and its year rings. Corresponding to the close cross sections of a carrot, a grain stalk or a tree trunk, the parallel cross sections of the *nerve cords* viewed through a microscope appear to be completely congruous.

If in such a condition in the axis of the nerve threads, carbon is laid over carbon, hydrogen over hydrogen, nitrogen over nitrogen, phosphorus over phosphorus and oxygen over oxygen, the outside motions or power equivalents can be directed to the brain by way of the nerve threads in the form of electric vibrations, whereby the elements hydrogen and oxygen lying alongside one another serve as conductors. From the brain these vibrations are returned in the form of *motion* or *sensation,* but not without having separated a certain amount of *water* from the nerve substances. This corresponds to the process whereby the electrochemical sun ray is conducted to the moist soil through the leaves and twigs, the wood fibers of the tree trunk or through plants in general. The sun ray then radiates from the root fibers and effects a chemical motion by arranging water, carbon dioxide and earths in a certain order and in this order leads them up into the light through the sap channels. The light then continues to work by separating water and oxygen.

Since the extension of our brain, the spinal cord, branches off like a tree trunk and the nerve branches cover themselves with muscle parenchyma, similar to leaf nerves, the human being thus resembles a reversed tree which walks about with its roots, the brain, in the *air*. Consequently, our brain-root will only stay alive in the air as the plant root stays alive only in the soil.

According to the law of growth — partly in vertical or axial, partly in horizontal or equatorial direction — the long worm-shaped tongue of the anteater appears to us like a cylindrical extension of a branch of the brain mass. The strongly developed mobility of the tongue must in fact be attributed to the entire spinal cord and can be most perfectly seen in snakes and worms when they coil up.

Because of this mobility, which is characteristic of the elastic hydrogen of the nerve substance, the nerve substance is able to branch out at will, shown by the small cords branching off from the spinal column, which also retains a hydrogen periphery. Upon this the creation of movable limbs is based. By their projection, the brain mass *grasps* or *feels* outside objects.

The nerve substance may then not act independently because the chemical ability of the nerve oil to unite is so intense, that it would *adhere* everywhere like catarrhal mucus. On this account, the projecting nerve substance always reaches outward only under the protection of neutralized or chemically unresponsive membranes. It is different *inside* the body. There the intestinal nerves come into direct contact with all organs and *adhere* to them. The nerve substance can again liberate itself from the part of the adhered material which is unsuitable for growth, only by rejecting its own superficial coating in the form of mucus, which then accompanies the excrements.

The small deviations in animal body forms are caused by such stretching and dispersing ability as well as by the adherence of various types of earth substances. Despite the variety of these deviations they all agree in the basic form of a cylindrical nerve cord which extends from a spherical shape which can end completely in branches, even in human beings. For the purpose of practical confirmation of the theory presented here, it must be specifically stated that sometimes children are born whose *entire* brain and spinal cord have wandered into the branches, similar to a hollow willow trunk. In such cases all limbs are exceedingly overdeveloped. The babies look as if they were at least four years old. Even hands and feet resemble those of a 12-years old. The face is complete, but there is no *brain* and no upper cranial covering. All intestines are in excellent condition, but there is no *spinal cord*. Brain and spinal cord have completely shifted into the face and into the limbs — and the back wall of the spinal column as well. Such creatures cannot stay alive outside the mother organism. This is extremely instructive because it demonstrates that a deviating form is produced when the *entire* brain or a *major part* of it has entered the body or the limbs. Therefore, this explains the appearance of variations in human and animal forms.

Regrettably, pathology contemptibly defies embryogeny in this connection. Pathology claims quite naively that no brains are formed in such a case, whereas embryogeny teaches that all other matter grows out of the *brain sac* and that in the third week the human embryo, in fact, consists of nothing but the brain sac and the medula cord.

On the basis that from the *brain* the other parts of the body are constructed because the brain has ramifications with which it grasps and feels outside objects (like the anteater with its tongue), the *anatomical* relationship in our body become understandable. The entire state of affairs is simplified thus:

A long series of branches or feeling apparatus spring out of our brain substance below the cranium roof in forms resembling crayfish legs, feelers or scissors. These surround themselves as much as possible with protective *bone substance* or, failing this, with *cartilage* or, if this is not sufficiently available, with firm *skin,* just as in the crayfish.

Some of these *feeler branches* are:

a) Two feelers topping them all, are those with which to sense the *smell* (ol-

factory nerve), which are enclosed by the nasal bones.

b) Two feelers which sense the *light* (optic nerve), protected by forehead, temple, jugular bone, etc.

c) Two stems with which the light feelers (like the tongue) are directed *backwards* and *forwards,* to the *right* and to the *left,* all depending on where something is to be seen. These are the oculomotor nerves protected by the orbit bones.

d) Two other stems which judge all that is seen from *top* to *bottom* while they adopt a specific position towards that which is seen — as when a small bird turns its head. These stems can also *turn in circles* (so mobile are the hydrocarbon groups) and, combined with the other feelers mentioned above, can either lighten from *enthusiasm* or express *virtue* and *love, ambition, intelligence, courage, vigor, justice, humility* and *piety;* but also *stupidity, arrogance* and *presumption, callousness, tyrannical lust for power, anger, fury* and *cruelty, hatred, jealousy* and *hypocrisy.* All these are expressed by the trochlear nerves.

e) Six stems (three pairs) which form the face with its play of features in order to counteract the tensions of the soul by wave-like vibrations, expressing pleasure and pain, laughter, weeping, compassion, hope, consolation and humility. (But apes possess the highest accomplishment — *making faces* and gnashing their teeth!) These are the trifacil nerves surrounded by the upper jaw bone and yoke bone.

f) Two feelers to feel the *sound.* They are the acoustical nerves surrounded by the bony labyrinth.

g) Three pairs of stems in order to grasp and hold fast what has been breathed and eaten. They are glossopharyngeal, pneumogastric and accessory nerves, protected by the vertebral column and the ribs.

h) To the above must be added the harmoniously cooperating pair of tongue flesh nerves (hypoblossus). These give suitable *form* to respective sounds, to express our joy and contentment and also our ill temper and reproach. These we can do by means of 12 to 15 different tongue movements which in various sequences can be adapted to heart-relieving speech, something the apes cannot do. The tongue flesh nerve is protected by the bony fence of the teeth.

We see that the brain branches are movable *feeling and grasping apparatus* and this is repeated by the ramifications of the spinal cord, which is but a brain extension. As the anteater does with his tongue, so the howling monkey grips the tree branch with its coiling tail and with its four side branches in the form of the extremities.

Man retains the material in his brain matter out of which the apes form their grasping tails. And so it happens that the human brain can *grasp* considerably *more* than the ape brain.

Now let us continue with the law of growth.

We do not consist of nerve oil only, but the nerve oil flows in skin tubes which are enveloped by a common shell and the latter shell again is surrounded by earthy parts which, by means of other hydrocarbon groups, are held together in the known form of bones. Since the ash content of the bones stands in an unchangeable proportion to their gelatine substance, we must conclude that mutual influence between the heavy and the lighter elements takes place. Each of these classes has a direction-giving, pole-forming influence upon the other or, equally, attraction.

Of the light-weighing substances the specifically lightest, i. e., hydrogen, comes first into consideration. Therefore, when the hydrogen content is diminished by oxidation or in any other way, the attracting or concentrating power upon the earthy parts becomes lessened and the latter will fall apart like moist clay into dust once the water has evaporated.

With this *mutual attraction* between heavy and light substances the law of growth has been fully explained, since we have now recognized all direction- or form-giving factors.

All in all, organic *growth* is based upon *magnetic power* so that *diamagnetic* elements such as gold, silver, bismuth and antimony cannot take part in plant growth.

Furthermore, a magnetized iron rod corresponds completely to the hourglass theory proposed by me. Each pole attracts

only the *opposite* pole of the other magnet, yet each individual pole and also the center part, give direction to and attract shapeless iron parts and assimilates them, according to the pearl necklace analogy, into links of a chain. However, these pearl necklaces return again into shapeless powder when the iron rod ceases to be magnetic, because the *electric* current stops which magnetized it.

That is all. The human body must return to dust when the electrifying and magnetizing tensional factors cease to function and the light-weighing substances disappear.

In chemical oxidation, such tensional factors are supplied by respiration, by the blood circulation and by the harmonious proportion of the watery parts with the solid substances, plus a sufficient amount of minerals (soda, potash, calcium, magnesia, iron) in relation to the blood serum.

Any disturbance in this harmony causes a pathological condition.

When we consider our *natural nerve foundation* and draw conclusions from it, it becomes clear that *excessive* electricity working upon the nerve material must produce a corresponding equivalent, so that the nerve substance *hardens* from loss of water, or its *cohesion* becomes disturbed because the molecules reverse their poles, thereby losing their conductivity, a condition called *paralysis*.

This over-exertion is the explanation for arm and leg paralysis and partial brain nerve paralysis (for example, the deafness of cannoneers, blindness of microscopists, etc.) Again, glands such as the spleen, liver, kidneys, stomach, intestines, can become paralyzed when, through the influence of atmospheric electricity, respiration is reduced. This causes tension in the nerve branches of the glands and instead of being loosened by regular oxidation through the oxygen of the arterial blood, the tension increases and eventually brings about *splitting*. The splitting affects mainly the protein constituents of the stagnating blood so that the blood decomposition is a *direct equivalent of the atmospheric electricity,* without the aid of existing split products which would lead to decomposition through infection.

Indeed, anatomical, physiological and pathological conditions lead us to consider three different sources of epidemic diseases affecting the population of whole districts, namely, tropical heat, passions and physical infection. These three sources often take a common course, particularly in big cities within whose stone walls tropical heat, sewage gas and passions of all kinds are concentrated.

Regarding the fact of infection through physical transmission there can be no doubt. Observations in this connection are too clear. It suffices to mention a few illustrations.

In France a tenant had a consumptive man take care of this chicken yard. The chickens ate the phlegm which the man had expectorated and in a few months ten chickens had died of intestinal consumption. The tough mucus (which is painful to expectorate) stayed unassimilated in the intestines of the hens and from then on disintegration of the lymph vessels took place, attacking the liver, spleen and ovaries.

According to the same ruling principle, constant breathing of sewage fumes causes typhus. In this case, the gaseous decomposition substances are absorbed by the lymph vessels of the lungs and spread out from there. Fumes are chemical molecules just as the constituents of mucus. Nevertheless, Virchow claimed that the typhus epidemic in Berlin in 1881 was not caused by the liquid manure used to irrigate the fields, maintaining that it was a historical fact that until then all cases of typhus in Berlin were imported by working men from Upper Silesia. In the outer districts of Berlin there existed at that time the same poverty that existed in Upper Silesia. This poverty plus the sewage fumes from the fields and the summer heat produced the conditions which brought about Berlin's own epidemic of typhus without having it brought from Silesia. We should not consider only one possibility because then the other sources from which the evil may result remain undiscovered.

Such infectious power of the sewer fumes belongs in the same category as the perspiration of a person who has scarlet fever. Both deal with ammoniacal decomposition substance. We know the

exact chemical nature of the perspiration of a scarlet fever victim. It is the same substance which gives decomposing fish its specific odor of herring lye, namely, trimethylamine CHH, CHH, CHH, NHHH, a substance which in the clearest way has the character of split material, inasmuch as a group of six hydrocarbons decomposes into two halves.

In order to prevent the chemical splitting effect of sewage fumes, sewers are not the correct thing to use. How much more rational it would be to mix the feces with suitable earthy substances, such as *caustic lime or gypsum,* which polarize the fume substances.

Similar to typhus and scarlet fever, *splenic fever* is produced by direct transmission when healthy animals are vaccinated with spleen-gangrenous blood. But this is not the only way splenic fever is produced. Of the first animals that contract it, it is created by excessive electricity during tropical heat, partly through the lack of drinking water and of electricity-conducting common salt. For those animals enclosed in zoos and in smelly pig sties, this is all the more so, since the animals receive clear water and sufficient salt from only a few sensible zoo keepers and hog farmers. To this must be added the lack of fresh air in these barns, for by shutting off the life-giving air untold numbers of animals are sacrificed each year. Thus it is clear that any form of vaccination to kill the bacteria cannot attack the disease at the root.

Here are a few illustrations to show how many *errors* are being made: Sputum is mixed with *nitric acid* to make the so-called bacteria visible, but nitric acid changes any substance because it *oxidizes* it. Therefore, in such a way new chemical compounds are created which did not exist previously. (To this belong, amongst others, all nitro compounds.) With such widespread ignorance of the fundamentals of chemistry it is painful to see how the world is being held in a state of anxiety. Since the world is kept in unrest by the bacteria theory one is obliged to fight it. The knowledge of the chemical nature of infectious substances called bacteria best serves the purpose. As already explained, *urate of ammonia* forms the universal common building stone for the physical substance of many animals. Fish, snakes, toads, mammals, birds, spiders, insects and snails all contain urate of ammonia. Without this the birds could not so easily get their nourishment from insects, neither the cats from birds and fish, nor the fish from snails. In a common sole *(Platessa vulgaris)* the size of a hand, I found 50 small mussels and four living thread worms, nothing else.

Urate of ammonia circulates in our blood, it is found in all glands, particularly in the liver and spleen, and is secreted from the body by the arteries of the kidneys like discarded building stone. But this lost material together with its fat can be renewed as building stone in the form of muscle flesh.

Indeed, urate of ammonia is a compound of 3 hydrocyanic acid, 1 cyanic acid and 1 carbonate of ammonia, and in spite of this they are harmless, because these groups find themselves in a mutual embrace, solidly welded together. This building stone again splits undamaged, as it was composed. Only in the case of violent influences, in particular those of a psychic nature, such as passions, fury, madness, killing mania or agitation and fear of bacteria, is a considerable equivalent required. Then the harmonious hexagonal building stone splits into separate fragments and the individual triangles of the disturbed form now become *form-destroying* and *poisonous in nature,* i. e., *hydrocyanic acid and carbonate of ammonia result.*

All bodies of those wo have died of splenic fever show the characteristic symptom of the dehydrating effects of *ammonium hydrocyanide.* The blood is thick and of blue-black color and the lack of electricity causing the death is recognizable because such a corpse decomposes unusually fast. This condition is a common ammoniacal decomposition due to the disappearance of electricity.

In the viscous blood of a splenic fever victim we find numerous crystallized rods. They consist partly of urate of ammonia and partly creatine, and since both these substances contain hydrocyanide and carbonate of ammonia, this proves, along with the blue-black blood,

the union of hydrocyanic acid with the iron-holding hemoglobin of the blood. Other substances (except carbon monoxide and *hydrocyanic acid)* do not possess this peculiar property. Carbon monoxide in our blood is identical in effect to hydrocyanic acid, because together with the ammonia of the gelatine sugar of the tissue it produces hydrocyanic acid separating water (CO, HHHN = CHN, OHH).

Animals with splenic fever collapse as if hit by lightning, and death follows quickly. This circumstance again proves the sudden liberation of considerable amounts of electricity due to the splitting processes.

Among the split products of the blood protein, ammonium carbonate occupies first place and is distinguished from formic ammonia and hydrocyanic acid only by hydrogen and water. Everything leads us to believe that the electrochemical effect of ammonium carbonate lies at an angle of 90° to that of oxygen, with the significance that sudden change in both kinds of gasses is followed by a change in direction of the nerve-substance molecules. This theory is supported by the following observation:

It is known that all stables smell of ammonium carbonate. This results from urea chemically united with water. When during bad weather a horse is confined to a barn with closed windows for several weeks, and when better weather comes must take up its work again, it can happen that even before it reaches the stable door, the first breath of fresh air causes it to collapse. Before the veterinarian can arrive, it is dead. When for weeks the nerve substance is forced to resist the ammonium carbonate and then suddenly oxygen is inhaled, all molecules of the nerve substance make a turn of 90°, thereby interrupting the nerve line. This is analogous to the air bubbles which interrupt the quicksilver in the barometer tube. One can well imagine what disaster the vegetation suffers when, instead of a west wind, suddenly an icy north wind blows, or instead of a south wind a chilling east wind. Now, the *warm* wind is the oxygen gas which has an oxidizing effect; the catarrh-producing cold wind is the ammonium gas. This is more than a mere comparison, because the wind direction is, indeed, not without influence on growth and thriving. Does not the east wind favor the beginning of *influenza* and *diphtheria,* and the foehn (a warm, dry wind blowing down a mountainside), even before it is here, brings on a headache? Further, it is known that any kind of sudden transition is detrimental, be it the transition from hot to cold, from pure joy to deep grief, from alcoholism to abstinence or whatever. In many such cases it happens that *apoplexy* or heart paralysis follows. How can we explain such a sudden interruption of the nerve line if not by the chemical splitting due to the abrupt pole changing of the nerve-substance molecules? The changed direction involves the equivalent of power.

CUM DEO

Since no other original groups of a poisonous character are found in our tissues, without doubt *ammonia* and *hydrocyanic acid,* or *cyanogen* must be responsible for starting the chemical blood disintegration. An analogy is how an insignificant piece of glowing coal can bring the contents of an entire powder magazine into chemical decomposition, splitting or explosion, in the sense that the parts lying side by side are thrown as far apart as possible. *Electricity,* a process

which fills the definition of the common stopgap, harmonizes perfectly with it.

Just as you cannot find the glowing fuse after an explosion, so we cannot hope to find and to prove that the substances ammonia and hydrocyanic acid, as such, remain intact and unchanged. This is explained by the fact that these chemical compounds unite with great energy with the constituents of the blood and the *tissues*. Quite new products result, in the same way that urea is produced from ammonium carbonate.

Instead of urea, in the case of splenic fever, creatine results, a compound of cyanogen CN; hydrocyanic acid CNH; and ammonia NHHH; with gelatine sugar COO, CHH, NHHH of the blood gelatine. This process is a typical analogy of the union of benzoic acid with gelatine sugar into hippuric acid when benzoic acid reaches the blood circulation through the stomach.

From the resulting *effects* we can deduce the presence of ammonia and hydrocyanide. In the case of splenic fever the viscous blue-black blood is proof of the effect of hydrocyanic acid. In *typhus* it is the dissolved shreds of intestinal membrane which show the effects of *ammonia*. Similar shreds of membrane appear in the mouth when a solution of ammonia (chloride of ammonia) or cayenne pepper essence (capsaicin = benzaldehyde-acetone-ammonia) is taken by mistake. And afterwards the presence of ammonia cannot be established because it became *chemically* united. The same is true of watered hydrocyanic acid as a poisoning substance. Only when unreasonable quantities of potassium cyanide are used deliberately as a poison the excess stays in the stomach, so its substance can be proven.

From the foregoing it is clear a) that the crystallized, changed products of the urea fragments in the thickened blood, in the form of creatine, are not the cause but the consequence of the dying off; b) that the little crystals, as such, did not immigrate as some pathologists claim; and c) that they could not have been propagated by procreation.

When bacteria is cultivated by dissolving gelatine in warm water and decomposed animal substance is added this proves only that the animal gelatine, because it lacks the *earthy tensional substances,* decomposes into similar microscopical blood - gelatine - crystal splits. When a sufficient power equivalent in the form of heat or electricity is supplied, then the blood disintegration must take place through lack of the tensional substances. Such tensional substances are *earths* and *salts*. For this reason, bacteria culture fails as soon as carbonate of soda is added to the gelatine solution.

When a person suffers from swelling and blood poisoning after being stung by an insect, medical books claim that the insect must have eaten from a splenic fever victim from where the poison came. If splenic fever is actually produced (usually the insect sting is followed by only a minor shock), then we should remember that all insects *themselves* dispose of urate of ammonia and for this reason act as *selfproducers* of ammonium cyanide.

When it was claimed that the bees, too, got their poison from a splenic fever corpse, what really happened was, that they killed a dog chained to a beehive, because the bees were annoyed by his howling. In all such cases we find a swollen spleen. The spleen is that gland whose function is the first and the easiest to be stopped, because a thick tissue is conductive to a rapid disintegration of the enclosed blood protein, and from hereon the decomposition proceeds.

The aforesaid explanation leads us to the therapeutic treatment of epidemic diseases:

1) For ailments of an epidemic character indicated by colds, fever and diarrhea, country people use with natural and correct instinct any *aromatic herb* such as: camomile, melissa, peppermint, elder, linden, wormwood. A hot infusion of these herbs seldom misses its effect as a sudorific remedy. The addition of heat is equivalent to the addition of new electricity. With such heat the hydrocyanic acid CNH absorbs water and forms ammonium formate. The latter together with the essential volatile oil of balsamic herbs and phosphates (all named herbs contain phosphate) create new nerve oil; once

started the tissues take another direction, so that at least part of the fragments again connect with their suitable poles. From thereon the vitality can grow anew, even if slowly. If such hot tea is readily available, it may suffice.

2) A remedy "without money, a doctor or sorcery" — is ordinary *vinegar.*

When a piece of meat is rubbed with vinegar, then it resists decomposition. Such an effect can not be explained in the ordinary way by the chemical power of vinegar. While it is true, that vinegar chemically unites with the gelatine sugar of muscle flesh, this only happens on the *surface* of the meat; since the inner parts stay durable too, although not touched by the vinegar, the assumption remains, that the outer parts of the flesh were placed into a condition of chemical tension by chemical union with acetic acid, whereby the inner parts also benefit, because the tension transmitted to the inner parts gives them a new direction.

Indeed, vinegar saves patients right at the beginning of *Diphtheria,* if the body is rubbed with vinegar. The missing tension of molecules is instantly replaced. Since I had this experience three times in Zürich, I must consider all other remedies against diphtheria merely as secondary.

Again vinegar is a proven remedy against *scarlet fever,* if the body is rubbed with vinegar immediately. The missing tension of molecules is restored at once.

That vinegar is effective against the plague too, teaches us the story of the "four-thieves vinegar" or "plague vinegar", so named, because during the time of that epidemic four thieves sprayed themselves with vinegar and robbed the empty infected houses, without falling sick.

Since vinegar proves its worth in such important cases, our domestic cattle too, should be rubbed down with vinegar, as soon as it gets sick and one does not know the reason for it.

Above all, during the hot season bodies should be rubbed down with vinegar, and sugar water with vinegar taken as a beverage, when epidemics are feared, in order to provide *human beings* with an electric tension generating means.

3) Another first class proven remedy is *Hensel's Iron Tonic,* (see page 241).

EARTH AND SEA are inexhaustible sources of wealth

My writings about the physical explanation of the primeval processes of creation are established upon the conclusion, that the tensional power of the *hydrogen gas* which as ETHER permeates all space, must be accepted as the primeval source of all motion and all life. The progressive development by which the earthy material together with the hydrogen gas transformed into organic substance, we have learned to know by the name of "protein", and was started by Mulder. Father Secchi called him a genius, who ferrets out the truth from the far distance and who sprints ahead in front of the slowly creeping snails in the shape of the common man.

Mulder found that the elements hydrogen, oxygen, carbon and nitrogen together with sulphur or phosphorus were never missing as basic substances in the plant sap, in meat, in albumin etc., which can change their place with one another with great ease and so bring about thousandfold forms of plants and animals. A similar ability by fluids of transformation namely of *water* (since hydrogen and oxygen finally lead to everything) were anticipated by intuition by Greek natural philosophers and they clothed their observations in the graceful form, that they personified the character changeability by referring to the *sea* as well as to the person, which caused these changes. They said jokingly, that the in the sea living sea-god *Proteus* could change his appearance and assume different shapes.

In nature Heat, Growth and Fertility are conceptions that belong together. Therefore we can not wonder when the subject of procreation forms the red thread which passes through the whole Greek natural philosophy. So I see in Ovid in spite of his "ars amandi" not only an erotic but rather a first-rate philosopher. *Ovid* repeats in his "Metamorphoses" the Greek teaching of the natural forces in poetic words, and talks of Proteus in his

8th book:

"Many of the Gods are able to transform themselves but once;
Proteus however, the sea-god once can take the shape of a man;
Once he changes himself into a ferocious lion;
Once he embraces stony rocks coiled like a *snake;*
Once again he changes himself into a *rock;* once he deceives the eye as a tree trunk;
Flows away like a *wave* or is a flaring *fire."* (Ovid)

This sounds somewhat odd and yet it is as plain as sunlight. First we have the wave or *water,* in which the tension of the hydrogen gas lies in concentrated form and which under the smallest sun ray begins a lively action. The sun raises the water as hazy vapor and wets as rain the bare *granite rock.* Now the water metamorphoses the granite which contains calcium, soda, sulphur and iron into a *fir tree,* whose roots encircle the fissured rock like *snakes.* If we set fire to these snake roots they burn as blazing flames. But, if we saw the tree trunk off about one foot above the soil, a multitude of new herbs gradually spring up from the tree trunk, e. g. the snake-like Lycopodium clavatum, the snake-like Linnaea borealis, the snake-root-like Vaccinium vitis idaea and other Ericaceen, Majamthemum, Convallaria, Fragaria, Rubus, Rosa, Sorbus, Juniperus. Many a tree trunk in Norway's forests is so uniformly covered with a long moss on its saw cut, that it imitates in gigantic dimensions the hairy cylinder-epithelium of the histologists. I showed the manager of the firm where the first edition of this book was printed on a Sunday (July 12th 1885) in a forest on the northern and southern part of the Elvaagen-lake near Oslo, Norway, all of these direct metamorphoses of the rock and tree trunk material, which are cold-bloodedly contested by many people; twice when I removed the thick hair tuft of moss from the top of the tree trunk, little ants swarmed under it, which were created from the phosphate sap of the tree trunk. The hour-glass form of these little ants were kind enough to illustrate in a typical manner my hourglass theory. The unity of the ruling circumstances confirms this truth. The entire colony of this small kind of ants apparantly must just have finished the larva stage and they had not yet found an exit through the very thick moss cover of their birth place; neither on the tree trunks nor near them could we find any ants.

In such manner the transformation of the Protein takes place unnoticed, thanks to the tensional power of addition of the hydrogen gas, as it is effective in *water.* The measure of this tensional power can be easily calculated:

Let us consider the haematite iron $\frac{Fe_4\,O_3}{Fe_4\,O_3}$ (Fe=28), with the specific weight of 5, then 1 liter contains 3500 gram iron and 1500 gram oxygen in chemical condensation. The 3500 gram iron (specific weight 7,84) fill the space of 444 cubic centimeters, so that the remaining 1500 gram oxygen occupy 556 cubic centimeters. These 1500 oxygen give with an equivalent amount, namely with $187^1/_2$ gram hydrogen $1687^1/_2$ cubic centimeters water; this means, that the space of the oxygen in the iron ore is multiplied *three times* by the chemical addition of an equivalent amount of hydrogen ($556:1687^1/_2$). Thereby the average weight of the product is decreased to such an extent, that the calcium oxalate (p. 362) resulting from the addition of hydrogen to calcium carbonate, must rise above the latter or beyond it. *Proteus* now sticks his head out of the rock in the form of lichen, whilst it exhales oxygen gas (air). As soon as it again unites chemically with this air (oxygen), it turns into heat and light, producing *fire.* Therefore we need but to decompose much *water* by systematically moistening suitable rocks (field and lime stone) expose to the sun light, so that we can store up new transportable fuel in the shape of wood, sugar and oil substance within and without our organism. And such fuel (fire substance) is obtained from *water* out of the inexhaustible sea.

All this results from *water* because it contains air (oxygen) and the vital substance hydrogen. Without water the greatest tracts of land are useless, since the treasure of the earth can only be raised through water. This is visible wherever

we look. While in the water- and rainless regions of Africa and Asia vegetation is totally lacking; on the Orinoco all plant life with all seeds turns to dust in the aridity, yet after some rain new life promptly emerges from the dust in the sunlight. What irrigation can do, we observe in Egypt. In those regions in Egypt which rely on the flood water of the Nile, the 50fold bread grain is harvested, but only *once* a year. Where artificial irrigation is used, *three* crops are obtained, but in the eastern part of Egypt which lacks rivers and lakes, *nothing* is harvested. Who wants to harvest must irrigate. And for this reason water is our most precious treasure. –

Through the water vapors delivered to the mountains near the sea, e. g. Norway is a land with extravagant natural resources. What will Norway be some day, when is has aquaducts! The excuse of heavy cost must not be calculated as the expense is but once, the maintenance costs are small and the profit stays for ever, because the Norwegian inland lakes are inexhaustible, thanks to the high mountains, which continuously condense the sea vapors. Also, the sea swept by the gulf stream never freezes.

Norway actually *abounds* in small lakes and rivers with many tributaries, so that on a large scale it resembles a modified egg yolk. Whereas a watery salt solution circulates between untold little islands in the yolk, the salt masses in this land are *rigid* in the form of silicates and the tensional hydrogen is stored in the inland lakes mainly located high above the sea. The region where at present only moss and lichen grow, because during 6000 years, as long as the earth rotates, snow and rain scarcely loosened the glass hard granite surface, can be made arable by the installation of water ducts. Here so much calcium and potash lies fallow, that it could supply the entire world with it, if the broken up rocks were "roasted" and thrown red hot into water. Then it would crumble easily and turn into arable land. This should be done instead of staying idle and misled by Charles Darwin who believed that the earth worm does this job. I have compared Norway with a yolk. This comparison is justified thrice, physically, chemically and metaphorically. Does not South- and North-Norway hang together like an egg-shaped seed on the umbillicus? And are not rocks and water the most concentrated egg substance, which under the electric sunlight transform into sugar and bread, milk and flesh, to guarantee our life, health and strength and for this reason cannot be redeemed with all earthly gold? Unredeemable with gold, because bread and meat provide the safeguard for our life, whereas the end of the golden Midas-song are long donkey ears!

Norway has even a priority over Ceylon, because in the North, thanks to the change of seasons, we live a new life each year, whereas the uniform climate of India does not know such a resurrection of life. The season's change acts preserving and refreshing. This is the reason why so many people grow more than a 100 years old. Are not the seasons a moving panorama, which unrolls before our eyes? Thereby the people enjoy at the same time "Panem et Circenses", an emotional entertainment, which the inhabitants of large cities like London, Paris, New York or Tokio cannot know. –

"Panem et Circenses", bread and entertainment! The stomach is filled so quickly, so that the time used for it does not count. However important good nutrition is for the *organism*, it is naught when the *spirit* does not receive its share. The day is so long and the spirit so thirsty to see something, to hear, to *work*. Especially when the inborn impulse to *work* is not satisfied, no man can be happy. The labor of our hands and brain is our good fortune. It fills by far the greatest part of our life. Therefore the population is much better served when it is given the opportunity for productive activity and wholesome employment instead of charity.

I believe the most royal occupation is to give the assidious forces the opportunity for fruitful development and to lead them onto peaceful paths. The peaceful and fruitful path is called *"Circulation"*. Just as the germ glands cannot remain alive and bear fruit when no blood and no oxygen flow back and forth, so the soil cannot become productive, when the circulation of water and air do not

alternate with one another. When the movement of water and air stops, then fertility stops too. On our well-trodden roads no grass can grow, because the water cannot penetrate into the road nor can it flow off, however along the road *edges* herbs will grow, because the soil is porous and rain water can penetrate. There grow without being sown, many and various forms of granite and feldspar plants.

That the constituent parts of granite become soluble in water carbonate we can observe from the mineral springs, whose analysis show: *aluminum phosphate* in union with carbon dioxide of iron, manganese, magnesium, calcium, strontium earth, further silica and calcium fluoride together with carbonate of potash and soda. The analysis of mineral springs are genuine hieroglyphics or sacred writing. That this sacred writing so far remained undeciphered is because it is written with chemical ink. Here follows the comment:

When rain penetrates into the mountain crevices, then thousand parts of water hold one part of silicic acid in chemical solution. The liberated basic substances potash, soda, iron, manganese, calcium and magnesia unite with the carbon dioxide dissolved in rain water.

Thereby a mixed protoplasm is created, since aluminum phosphate, sulphur and soda are also present in the granite. The moment the sun shines on such water laden with protoplasm gushing from the earth, it electrolytically separates hydrogen from the water and the hydrogen immediately begins to build up plants. They are two, four or six related kinds, the peasant Plantago with 4 parts, king Verbena with five fragments of a certain protoplasm group. Now the sulphates, phosphates, silicates and carbonates of potash, soda, calcium and magnesium split either into oats-, barley-, rye and wheat-protoplasm, or into several forms of clover, or into rape, vetch, lentils, peas, beans etc., beet and carrots, or strawberry, raspberry, red current, cherry, peaches, apricots or hemp, nettle, Lamium, Glechoma, dandelion, chicory bush, camomile or chrysanthemum. Thus it happens that wherever mineral springs flow, nature delightfully refreshes our senses. Earth and water embrace one another in the sunlight and create flowers and fruit.

One could ask now: "How can from one and the same material — granite — thousandfold different plant forms grow". The explanation is not difficult. We have learned to know that the scarcely visible human egg is a genuine ocean of chemical molecules. Therefore we are entitled to accept a visible water drop with the same right as an ocean of molecules. What an enormous time is needed to examine microscopically a suspected drop of drinking water, squeezed between two pieces of glass; the extension and the content is enormous.

In road dust we deal with a fine powder of granite, which contains the known minerals. These minerals held in their primeval sun glass flux quite a different grouping against one another than after cooling. Then they crystallized into hard quartz, soft mica and medium hard feldspar. In the sun light and water the dust gets mobile and thanks to their inborn tension they promptly begin a fight for their places, taking careful consideration of symmetry and the *polar* (axial) or *equatorial* (at right angles) position against one another. This can be observed with the naked eye when a little road dust is added with a fine brush to a water drop on a glass plate. This fight is rightly called "molecular movement".

When a rain drop falls onto dust it could occur that 36 molecules of potassium silicate, 30 aluminum phosphate, 24 calcium fluoride, 18 magnesium silicate, 12 sulphur manganese and 6 iron protoxide silicate group into manifold modifications. In spite of equal number and kind, the molecules can produce by deviating sequence and the same basic material quite different kinds of *protoplasm*. According to heat and light the prior chemical change can draw different new forms, analogous to the transformation of iron vitriol and cooking salt into iron chloride and sodium sulphate (Glauber's salt).

Amongst these new forms *potassium phosphate* requires our most careful attention. Its existence is due to the sun power which causes the electrolytical splitting of aluminum phosphate and potassium silicate, leaving aluminum silicate behind.

Phosphoric acid possesses the prominent *motive power of growth* and is contained in the granite as aluminum phosphate, which on account of its similar chemical action of aluminum earth was taken during rock analysis for ordinary clay.

Thanks to the valuable knowledge gained by our studies, the treasures of the earth suddenly appear before our astonished eyes and thank goodness we begin a new era of human culture. From now on we no longer need to buy expensive superphosphates from the manufacturing plants, because the cereal creating phosphoric acid in the form of primeval rock is – so to speak – free of charge.

Thus in view of the superabundant masses of primeval rock plus common stone assembled on our soil, a peculiar perspective opens up before us. Namely from the phosphoric acid united with clay (aluminum earth) the oil substance and ammonia of our human brain matter emerges. From the sulphur which is also present in granite as sulphur sodium, the sinewy substance results and calcium earth, magnesia, manganese, potash, soda and iron supply our bone substance and blood salts. –

"Sprinkle granite dust and chalk onto your soil and sow barley and wheat, than your fields will become populated, because the stones come to life and you will see a busy Myrmidon folk carry on their trade. The magic stone which you must throw among the belligerent troops of passion with the result that one will destroy the other, is but a common *field stone*. Where were your eyes? – Just look, out of the stones a host of magic herbs will grow, all of which possess the power to put the dragon "Prejudice" into deep sleep. With a threefold forked tongue (poverty, ignorance and envy) he rests upon golden bushes. Now you can rob him, as new knights of the golden fleece, of all treasures on this earth, which until now he guarded without any pleasure and which he withheld with envy from the inhabitants of this earth. (Ovid Metamorphoses, book 1 and 7).

How was it possible that oxalis (acid potassium oxalate), cream of tartar (bitartrate of potassium), the water holding verdigris (copper acetate), calcium malate (apple acid) etc., were dealt with as organic substances, the ammonium resulting from cyanogen CN referred to as an *inorganic* substance and together with the earths and water were discarded from the section of organic chemistry?! There exists not one single section on the subject of growth and nutrition, where the *earths* and *water* will not play a prominent part.

If we do not take a positive stand, we blindly forfeit our inexhaustible natural resources, which are at our disposal and we must suffer for our ignorance accordingly.

Sociology

"To-day we know. that a de-vitalized nutrition lacking in certain minerals, can wreck the strongest nation and that all other hygienic measures cannot help". (Prof. Dr. med. Kollath, 1950)

Sociology is the systematic study of the development, structure and function conceived as processes of interaction or as organized patterns of collective behaviour. – (Webster's 7th new collegiate dictionary 1963). Naturally, the study of sociology must begin first at home by the parents, then at school where the pupils must learn and understand the responsibility of their own conduct, of the acts and achievements of society and thus promote health, science, prosperity and posterity of the whole nation.

Now there is a substantial difference between science and advertising. Science is a search for the truth, while advertising serves the purpose of directing the population's thoughts into definite channels, which serve the commercial interests of of others. Where a combination is achieved, it becomes a clever conspiracy against the search for the real truth. – In the drug section of medicine for instance, there is no longer total freedom; it is dominated by industrial interests. –

In the effort to solve the world food problem, we should remember, that the production of *plant food* supplies hu-

manity with *ten times* more calories than animal food. Again, a meat diet is *three times* more expensive than a vegetable diet. Unfortunately, most food is sold by weight or measure, while of the *quality of the food* very little is said. Yet it is the quality of our daily food that is vitally important.

Healthy red blood is not only our most reliable medicine and our universal remedy against diseases, in addition it is the living doctor in our organism, always ready to help and never making a mistake, it is our safest naturopathic physician. Does not the child in mother's lap build up all its organs and members from the motherly blood and later the mother's milk replaces her blood, so the milk is but transformed blood and can be converted back into blood. — The womenly art of breast-feeding exists since the creation of mankind. Oliver Wendell Holmes wrote in 1867: "A healthy pair of mammary glands have an advantage over both brainhalves of most learned professors. They know more about the composition of a nutritive fluid for infants than the professors". — Naturally only, if the mothers already during pregnancy, as well as during the time of breast-feeding are living on a *biologically produced diet* as explained by Hensel in this book. —

Let us compare the apples with the potatoes (earth apples in German)! How fast do apples rot, especially when a piece is cut off? Quite different is the potato. The cut caused by the hoe soon dries and heals because a new skin is grown. — This is achieved by the minerals (plant ashes). Whereas apples contain but 2 grams minerals per kilo (2,2 lbs.), potatoes have nearly 20 grams of minerals, nearly the tenfold amount. And look at the productive force of potatoes rich in ashes! Even when kept in the cellar a new smaller potato has grown now and then within its skin, at the expense of its substance. And when planted in the soil the potatoes multiply tenfold from spring to fall. — Or do you think that another cause than the productive power of the earths exists, that the poor class of people whose staple food is potatoes, are blessed with many children? — Wherever we look we find that the earthy constituents supply the plants with their durability and cohesion with the result that the quality of our food determines the vital condition of the human organism. Therefore oak and beech trees get thousand years old, whereas fifty year old firs already are affected by the bark beetle and the wood worm. Oaks and beeches contain 3/5 per cent ashes, firs but 1/5 per cent.

"The explosive increase of population together with the progress of natural science, technique and industry, developed in our modern time not only many new requirements — genuine and synthetic — but also they created many despotic groups of interest hungry for power. — Many of these new powerful groups cultivate refined forms of dependence and even a kind of bondage and slavery, in order to force man under their yoke according to the old rule of absolute domination. Smoking is such a form of bondage, because it is an unnatural habit which has been grafted upon man by a kind of violence upon his vegetative nervous systems by irresponsible propaganda and by de-vitalized food deficient of the necessary minerals. Our modern system of economy aims constantly to cause new desires and requirements for men, in order, here I quote Karl Marx: "to force them to new sacrifices, to place them into a new dependence and to seduce them into new forms of pleasure and thus create a physical, mental and financial ruin".

"The profit from *smoking* to the industrial power reached the gigantic sum of ten billion German Marks in 1968, to be devided amongst the industrial power, commercial power, fiscal power, propaganda power and press power, to which must be added the cost of medical treatment (medicinal power). This modern self-destructive life is in direct contrast to the creative-constructing power of evolution". (Gesundes Leben, August 1968, 5912 Hilchenbach Germany).

Dr. L. KAPRIO said: "The problems of Europe are the problems of all large health organisations with old traditions, above all in the therapeutic field. The medicinal care has become a very important economic factor for the society. Another problem is the doctor's care of children and youth. Then we have the

unresolved problems of the chronik diseases including cancer, heart- and coronary diseases, mental diseases, traffic accidents and occupational diseases etc.". (Dr. Leo Kaprio, director of the European regional offices of WHO in "Welt-Gesundheit", Zürich, August 1968). (WHO = World Health Organisation)

JULIUS HENSEL said: The most urgent problem of to-day is the PREVENTION OF DISEASES, we must grasp the diseases at their root, namely we must control and reduce the excessive use of nitrogen fertilizer on our fields, because the more ammonia NHHH our food contains, the more it outweighs the protein-cementing minerals and the faster the *blood- and lymph protein decompose*. — It is a known fact, that all nitrogen compounds have the chemical property to regroup themselves easily, even to separate and so change into new poisonous products, e. g. the hydrocyanic acid HCN. The doctor's natural business is the treatment of diseases, yet it is the duty of our LEGISLATURE invested with power and responsibility, to PREVENT DISEASE, to stop our insidious progressive degeneration with its terrific waste and loss of working hours, as well as money."

Again Hensel warned men, "that the excessive use of nitrogen fertilizer is the main cause of the transformation (metamorphosis) of the plant protein rich in phosphates into INSECTS and FUNGI, because the single members of the atom group change their place, thanks to the restless *growth-motive of all phosphates*. Herein lies the endless alteration of the protein substance with its miraculous variety in the shape and form of all organic structure. All organic *ammonium phosphate* is in continuous *motion*, regrouping, new-building and form changing; it is and shows independent LIFE and is convertible and transformable like Proteus, therefore its name "Protein" for all organic building material".

"Yet this astonishing mobility of the protein phosphate must be regulated and restricted, but without the use of poisons. — This is done in the most natural way by the use of ground rock fertilizer, since the primeval rocks contain sulphuric acid which possesses a regulating effect on the phosphoric acid of the ammonium and the calcium- and magnesium earths restrict the ammonia growth (hypertrophy) of the ammonium phosphate, without the artificial interference of poisonous insecticides, which poison the plants, the soil, subsoil water, man and animal. Here again our Legislature will watch the errors of sinful money-minded humanity of the 20th Century".

With all thy getting, get a better understanding of the chemical processes of Life. The study of the functions of life is the essence and foundation of all knowledge. Let us study the unadulterated open book of nature, the chemistry as the master of natural science, knowing as we do, that it holds the magic key to the door of welfare and prosperity of all living beings on our planet. — (ED.)

Epilog

It now remains for me to answer the question which has so often been put to me, what do I think of the vegetarian diet. I have already said that the *nitrogen-hydrocarbons of any origin* serve to complete our physical substance provided that at the same time they supply the necessary minerals to keep body and soul together. As an example: Eggs and milk in addition to whole grain bread and flour, potatoes, vegetables and fruit biologically grown are fully able to substitute the nitrogen containing meat. But there is no objection to consuming meat when at the same time a sufficient quantity of potatoes, which are rich in minerals, is also consumed.

The natural horror of sensitive people to the slaughter of animals can well be understood and personally, if I had to slaughter the sheep myself, I certainly would forfeit its roasted leg. But once it is butchered it no longer needs pity because then only the generally available nitrogen-hydrocarbons remain. The same applies to carp, pike, trout and herring, chickens and pigeons. Must the regularly

increasing human race let the animal world increase without any restriction so that ultimately the cattle will take over our food supplies? Does self-maintenance not demand that we eat the beef? Now the subject can also be viewed from another angle:

I would first remind you that many a savage eats the heart of his courageous enemy believing to eat at the same time his courage. Then as a variation on the same thought I judge the communion of host to have the symbolic significance, that the receiver be as free of sin as the founder of the Christian faith. Finally, I return to the beginning. After I had to recognize all present atoms to be an emanation of the divine creative being, it makes no difference whether I eat an apple or a beefsteak. In both cases I eat something originating from God. I eat my Lord who will not be less for it, because the indestructible atoms only change their place and we all are and remain beings created by God, we are God's children. Is there anything more consecrated and hallowed than the conception, that only by the change of place of the indestructible atoms the divine power gives itself without interruption as *nutriment,* so that for a while we can enjoy its universal presence? –

The spiritual principle understands the art to hide from silly eyes, so that shortsighted men claimed that God is invisible. On the contrary how much more inspiring is the knowledge, that wherever we go or stay God is always *visibly* near us in the form of almighty nature. Because "God" and "Nature" are one and the same being.

The ideas "to be, being, have been, shall be and nature" are also one and the same.

When Moses was educated at the priest seminary in Sais (Lower Egypt) where deservedly the teaching of the processes of life were given being the foundation and essence of all knowledge, his interest was aroused apart from the altars dedicated specifically to the Egyptian gods on an altar dedicated to the general world deity with the inscription "I am that I am".

Later, when planning to lead the Israelites out of Egyptian bondage he consulted God in his heart.

I must suggest to the Jews that a higher power stands behind me. Of whom shall I tell them that I have been sent? – "And God said unto Moses, I AM THAT I AM: and he said, Thus shalt thou say unto the children of Israel, I AM hath sent me unto you". Moses answers this question with the resolution, tell them: I AM has sent me. – (Exodus 3, 14).

What always will be, what has been since the beginning, the for ever new being, the constantly new forming (nascor, natus sum, *naturus* sum), the new creating, the eternal I AM is exactly the Creative Being.

The Creative Being or I AM is naturally sexless, neither Godfather nor Godmother. Therefore it could be named just as well "Naturum". However, our restricted view that the last phase of creation is considered feminine brought about the consequence that the denomination "Natura" or Nature was adopted.

In accordance with the aforesaid denomination "God" and "Nature" actually are equivalent and Goethe's expression "God-Nature" has the clear significance that knowledge of nature, pantheism (God everywhere) and religion (union with God) represent an inseparable unity. –

It was reserved for JULIUS HENSEL's genius to see and tell the truth. With malice towards none, with enlightenment for all, Hensel with his eminent biochemical knowledge has made the building plan of heaven and earth understandable to us. At the same time he taught us the foundation of life and the means of its maintenance. All writings of Hensel are jewels of rare value and the whole humanity owes him unredeemable thanks for his wonderful discoveries. JULIUS HENSEL was an instrument of the divine Architect destined to promote, elevate and ennoble mankind. –

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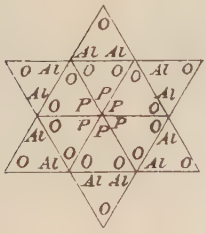
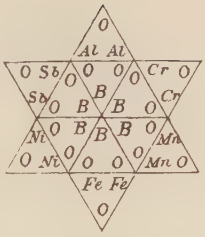
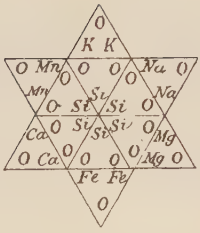
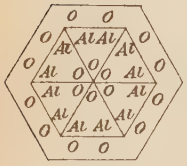






Second Forms

Products of the Influence of Hydrogen

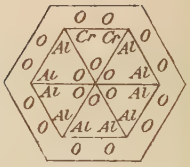


Corundum

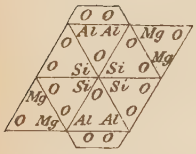
Ruby

Diamond

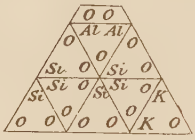
Sapphire



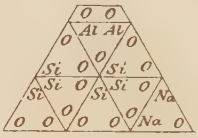
Emerald



Biotite



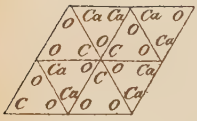
Orthoclase



Albite

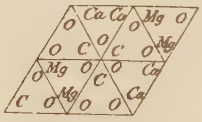
Diopside

Marble



Iceland Spar

Alabaster

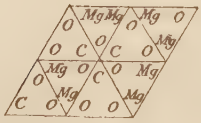


Dolomite

Sylvite

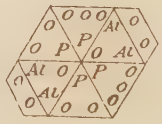
Apatite

Siderite



Magnetite

Silica Slate



Wavellite

Water

PH_3, SbH_3, AsH_3

SH_2, FH_2, $Cl\,H_2$

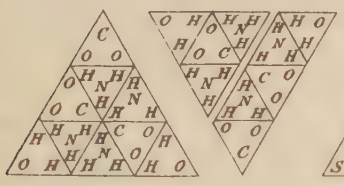
6CNH

6CHH

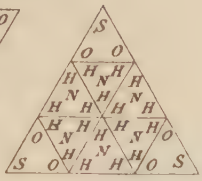
6NHHH

Third Forms

Products of the Influence of Water

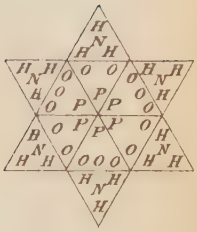


Hartshorn

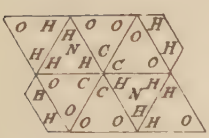


Ammonium Sulfide

Ammonium Sulfate



Ammonium Phosphate



Ammonium Oxalate

Neutral Ammonium Oxalate

Formate of Urea

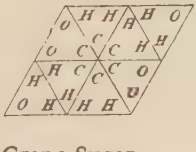
Urea

Ammonium Cyanide

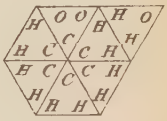
Leucine

Fusel Oil (Amyl Alcohol)

Caproic Acid $C_6 H_{12} O_2$



Grape Sugar $C_6 H_{12} O_6$



Oxycaproic Acid $C_6 H_{10} O_2 H_2O$

Xanthine $C_5 N_4 H_6 O_3$

Sarkin $C_5 N_4 H_4 O$

Guanine $C_5 N_5 H_6 O$

Allantoine $C_4 N_4 H_6 O_3$

Ammonium Urate $C_5 N_4 H_7 O_3$

Creatine $C_4 N_3 H_{11} O_2$

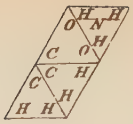
Azulmic Acid $C_4 N_4 H_4 O_2$

Potassium Ferrocyanide $C_6 N_6 K_4 Fe_2$

Gelatine Sugar $CO_2 NH_3 CH_2$

Jarcosine $C_3 N H_7 O_2$

Trimethylamine
$NH_3\ 3CH_2$

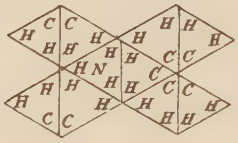


Lactamide
$C_3\ NH_7\ O_2$

Propylamine
$NH_3\ 3CH_2$

Acetone
$C_3\ H_6\ O$

Methylglycolic Acid
$C_3\ H_6\ O_3$



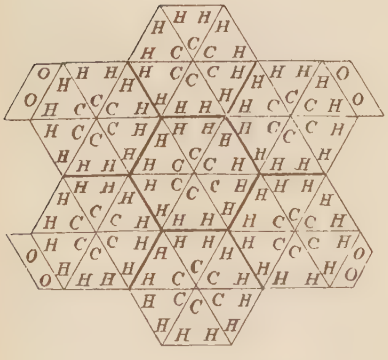
Diethylamine
$NH_3\ C_4\ H_{10}\ 2C_2\ H_4$

Lactic Acid
$C_3\ H_6\ O_3$

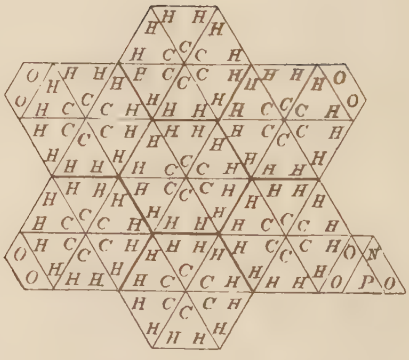
Fourth Forms

Paired Results of the Second and the Third Forms and their Oxidation Products

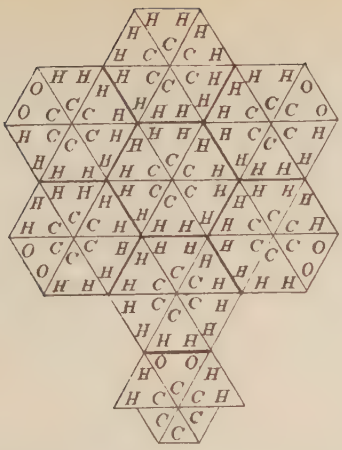
A. Fats



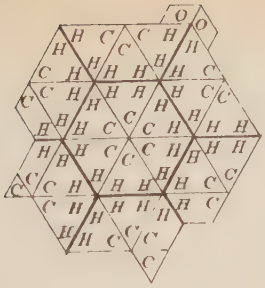
Stearin Tallow
$7(C_6\ H_{12})$ plus 8 Oxygen
$= 2(C_{18}, H_{36}, O_2, C_3\ H_6\ O_2)$



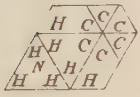
1/6 Nerve Stearin (Lecithin)
= Stearin Tallow + $NH_3\ PHO_3$
less 2 Water = $C_{42}\ H_{84}\ NP\ O_9$



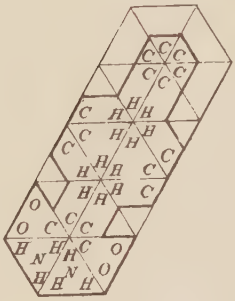
Bile Tallow (= 2 Cholic Acids)
$C_{48}\ H_{80}\ O_{10}$
= Oxidized Stearin Tallow
$C_{42}\ H_{76}\ O_8$ plus Grape Sugar
$(C_6\ H_{12}\ O_6)$ less 4 Water



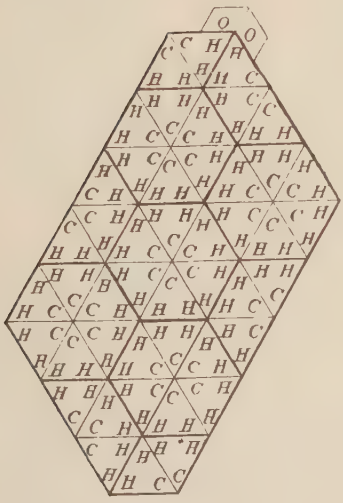
Cholesterol
$C_{26}, H_{46}\ O_2$
(Oxidized Bile Tallow)



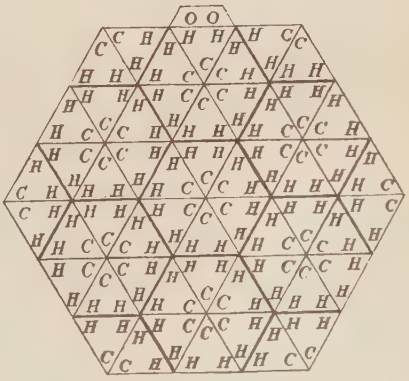
Aniline Oil
$C_6\ H_7\ N$



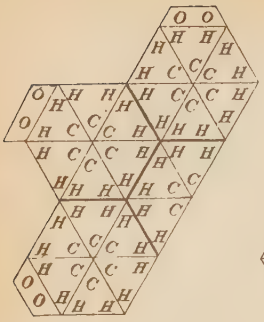
Biliverdin
$C_{16}\ H_{18}\ N_2\ O_4$



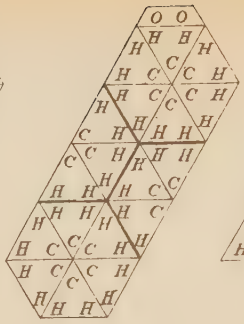
Beeswax
$C_{46}\ H_{92}\ O_2$
= 5 Hexylene, 4 Propylene,
2 Ethylene + 2 Oxygen



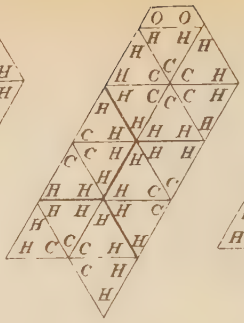
Chinese Plant Wax
$C_{54}\ H_{108}\ O_2$
= 7 Hexylene + 6 Ethylene
+ 2 Oxygen



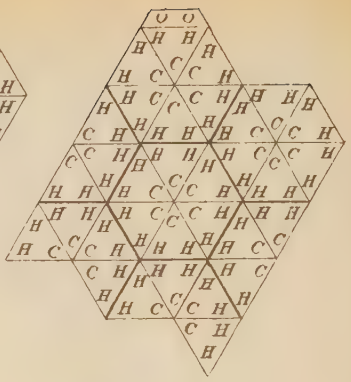
Castor Oil
1/2 Stearin Tallow
+ 2 Oxygen
$C_{18}\ H_{36}\ O_5, C_3\ H_6\ O_2$



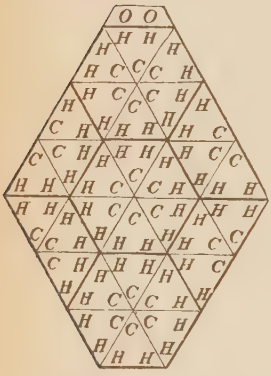
Stearic Acid
$C_{18}\ H_{36}\ O_2$



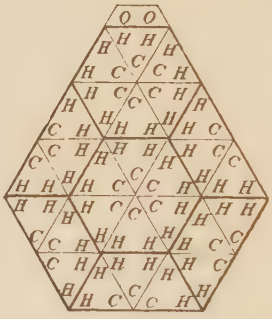
Palmitic Acid
$C_{16}\ H_{32}\ O_2$



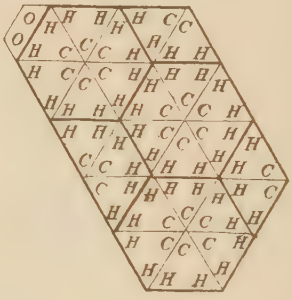
Spermaceti
(Whale Oil)
$C_{32}\ H_{64}\ O_2$



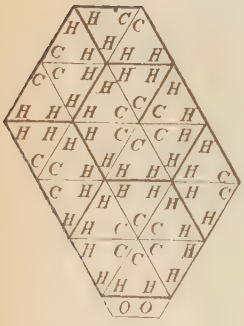
Melissinic Acid
$C_{30}\ H_{60}\ O_2$



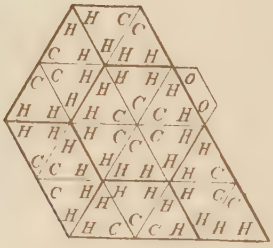
Cerotic Acid
$C_{27}\ H_{54}\ O_2$



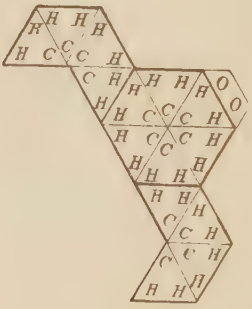
Hyenic Acid
$C_{25}\ H_{50}\ O_2$



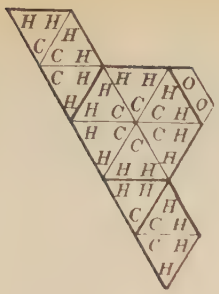
Behenic Acid
$C_{22}\ H_{44}\ O_2$



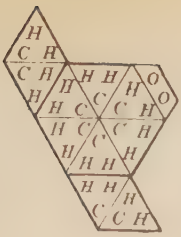
Arachinic Acid (Peanut)
$C_{20}\ H_{40}\ O_2$



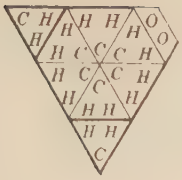
Myristic Acid
$C_{14}\ H_{28}\ O_2$



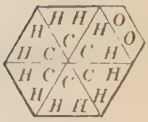
Lauric Acid
$C_{12} H_{24} O_2$



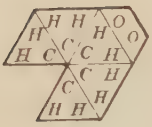
Caprinic Acid
$C_{10} H_{20} O_2$



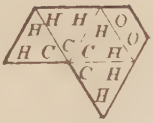
Caprylic Acid
$C_8 H_{16} O_2$



Caproic Acid
$C_6 H_{12} O_2$

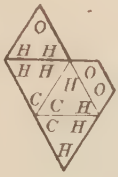


Valeric Acid
$C_5 H_{10} O_2$



Butyric Acid
$C_4 H_8 O_2$

Propionic Acid
$C_3 H_6 O_2$



Glycerin
$C_3 H_8 O_3$

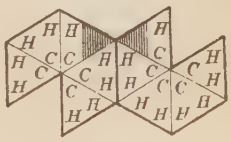
Acetic Acid
$C_2 H_4 O_2$

Formic Acid
$C H_2 O_2$

B. Essential (Volatile) Oils

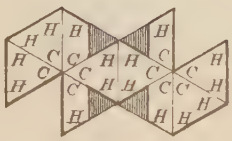
Menthol
$C_{10} H_{20} O$

Fusel Oil
$C_5 H_{10} H_2 O$

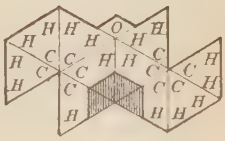


Menthene
$C_{10} H_{18}$

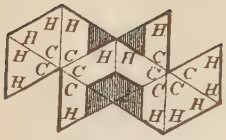
Borneol
$C_{10} H_{18} O$



Borneen
$C_{10} H_{16}$



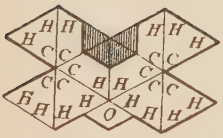
Camphor
$C_{10} H_{16} O$



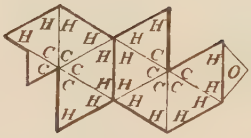
Carvacrol
$C_{10}\ H_{14}$

Carvol
$C_{10}\ H_{14}\ O$

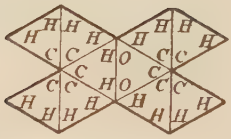
Cuminol
$C_{10}\ H_{12}\ O$



Absinthol
$C_{10}\ H_{16}\ O$

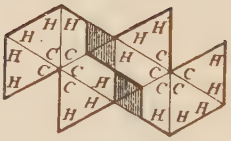


Cajeput Oil
$C_{10}\ H_{18}\ O$

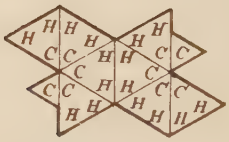


Roman Camomile
$C_{10}\ H_{18}\ O_2$

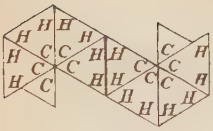
Lemon Oil?
$C_{10}\ H_{16}$



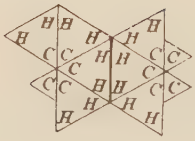
Turpentine?
$C_{10}\ H_{16}$



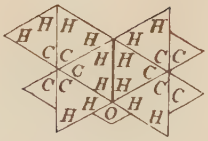
Thyme?
$C_{10}\ H_{16}$



Carven?
$C_{10}\ H_{16}$

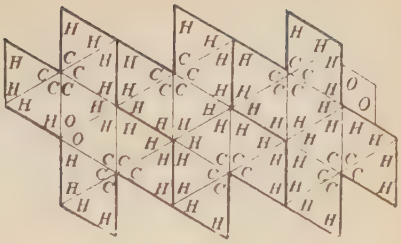


Cymol?
$C_{10}\ H_{14}$

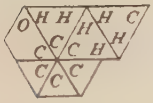


Thymol?
$C_{10}\ H_{14}\ O$

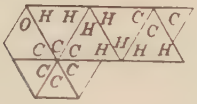
Rose Oil = $C_{16}\ H_{32}$ ($C_5\ H_{10}$, $C_6\ H_{12}\ C_5\ H_{10}$)



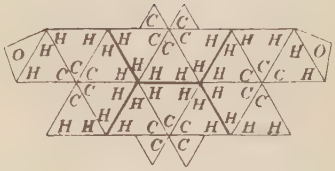
Lavender Oil
$C_{30}\ H_{56}\ O_4$



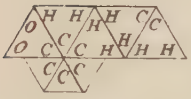
Bitter Almond Oil
$C_7\ H_6\ O$



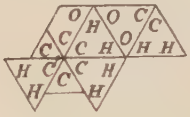
Cinnamon Oil
$C_9\ H_8\ O$



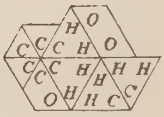
Orange Oil
$C_{20}\ H_{32}\ O_2$



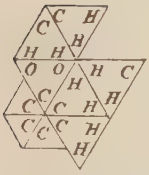
Anise Oil
$C_8\ H_8\ O_2$



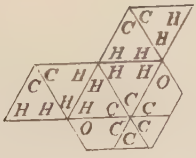
Wintergreen Oil
$C_8\ H_8\ O_3$



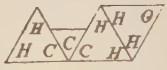
Vanilla Oil
$C_8\ H_8\ O_3$



Pineapple Oil
(Benzoyl Ether)
$C_9\ H_{10}\ O_2$



Oil of Cloves
$C_{10}\ H_{12}\ O_2$

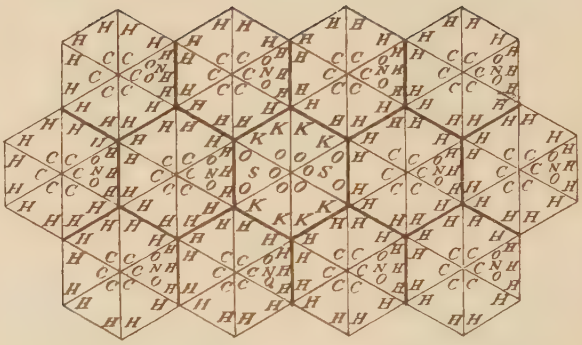


Allyl Alcohol
$C_3\ H_6\ O$

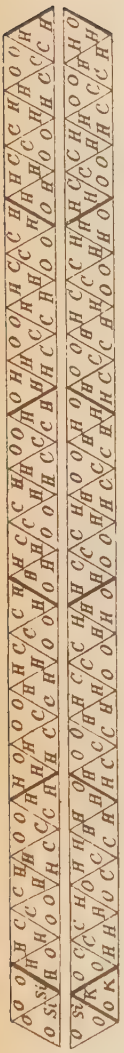
Garlic Oil
$SHH + 2C_3\ H_4$

Fifth Forms

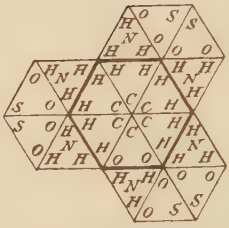
Vegetable and Animal Tissues
together with their Split Products



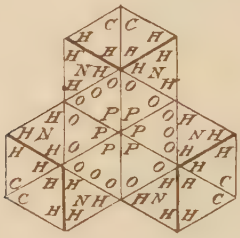
Potassium Protein
A Center of Sulfate of Potassium
with 12 Leucine



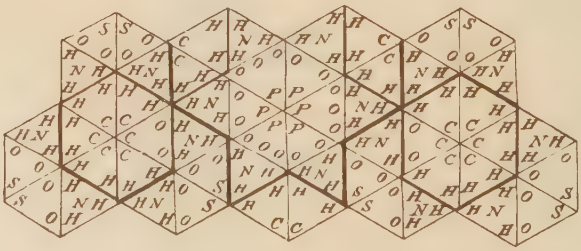
Potassium Cellulose $K_2O\ X(C_6\ H_{10}\ O_5)$



Protein Carbonate-Sulfide
(A center of leucine
of ammonium sulfide, limited
at periphery, with sulfur
at the periphery)

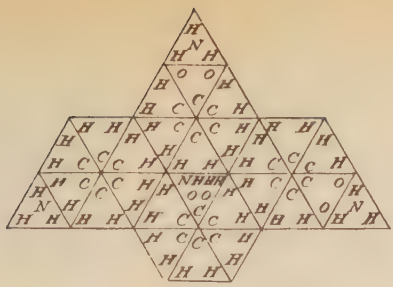


Protein Phosphate
(A center of ammonium
phosphate limited by
ethylene, with phosphorus
at the center)



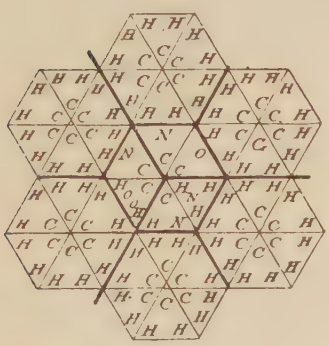
Group of 1 Phosphate
and 2 Sulfide-Carbonate
of Protein

Theobromine
$C_7 H_8 N_4 O_2$

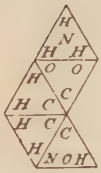


Group of 4 Leucine

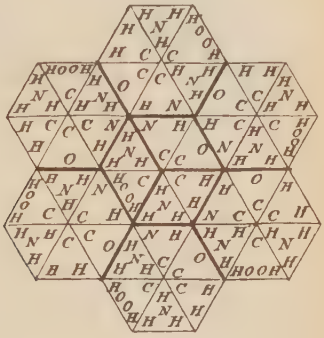
Caffeine
$C_8 H_{10} N_4 O_2 H_2 O$



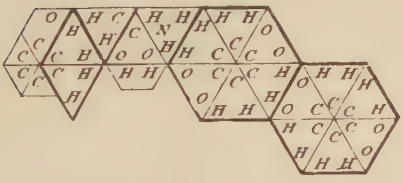
Group of Xanthine
with 6 Hexylene



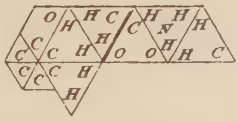
Asparagine
$C_4 H_8 N O_3$



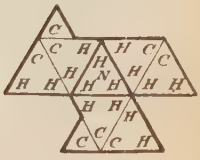
Group of 7 Creatine



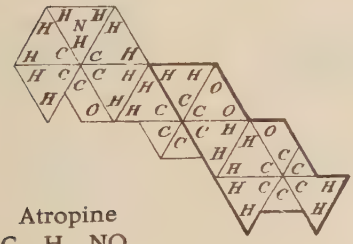
Amygdaline
$C_{20} H_{27} NO_{11}$
(Bitter almond Oil plus
ammonium formate + 2 sugar,
less 4 water)



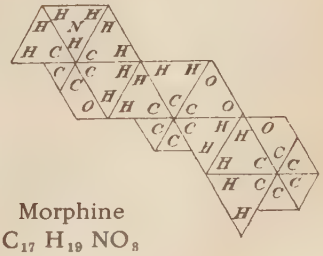
Tyrosine
$C_9 H_{11} NO_3$
(Bitter almond oil
plus gelatine sugar)



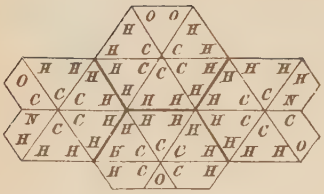
Coniine $C_8 N H_{15}$
$(NH_3, C_2 H_4, 2C_3 H_4)$



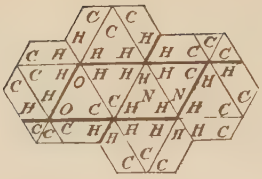
Atropine
$C_{17} H_{23} NO_4$



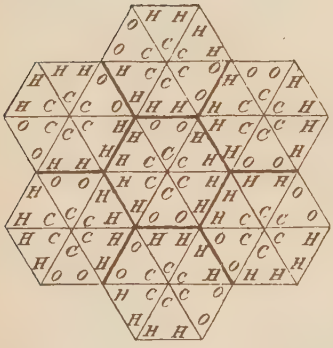
Morphine
$C_{17} H_{19} NO_3$



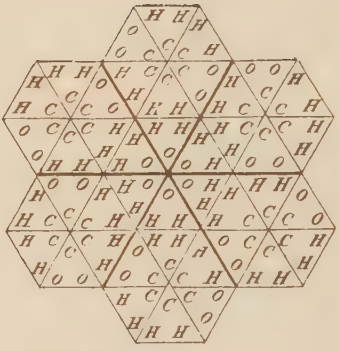
Quinine
$C_{20}\ H_{24}\ N_2\ O_2$, 3HHO
= 4 Amylalcohol (resulting from tannin and united with 2 tannin) having lost 12 hydrogen from 2 tannin (quinine tannin acid) and absorbed 2 oxygen and 2 nitrogen



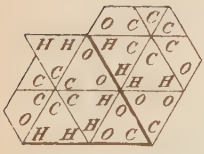
Strychnine
$C_{21}\ H_{22}\ N_2\ O_2$
= Gelatine Sugar Cyanide surrounded by 6 oxidized propylene



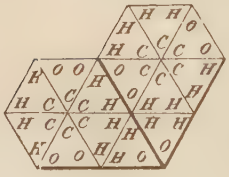
Heptadilactid
$7(C_6\ H_8\ O_4)$



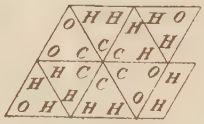
Amylum (Starch)
$6(C_6\ H_{10}\ O_5)$



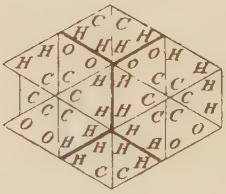
Tannin
$C_{14}\ H_{10}\ O_9$



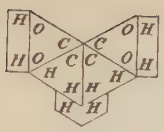
Dextrin
$2(C_6\ H_{10}\ O_6)$



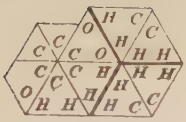
Mannit
$C_6\ H_{14}\ O_6$



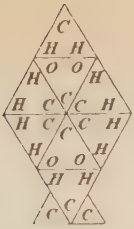
Coniferine
$C_{16}\ H_{22}\ O_8$



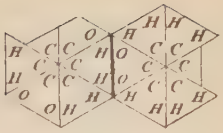
Erythrite
$C_4 H_{10} O_4$



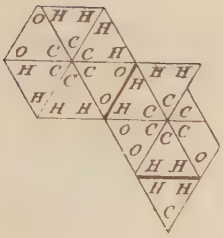
Quassiin
$C_{10} H_{12} O_3$



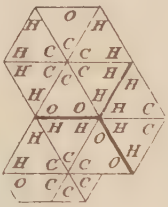
Cantharidin
$C_{10} H_{12} O_4$



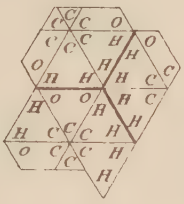
Picrotoxin
$C_{13} H_{14} O_5$



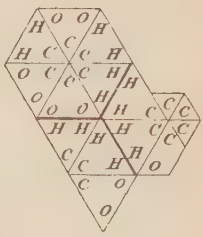
Salicin
$C_{13} H_{18} O_7$



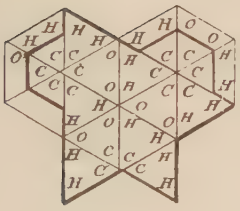
Carthamine
$C_{14} H_{16} O_8$



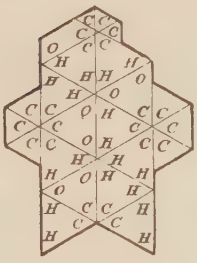
Santaline
$C_{15} H_{14} O_5$



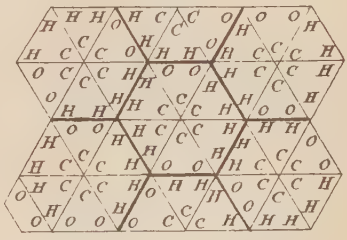
Aloine
$C_{15} H_{18} O_7$



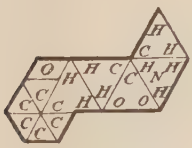
Hematoxylin
$C_{16} H_{14} O_6, 3(HHO)$



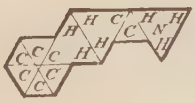
Brazilin
$C_{22} H_{18} O_7$



Aesculine
$C_{30} H_{40} O_{22}$

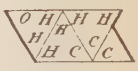


Hippuric Acid
$C_9 H_9 NO_3$



Indole
$C_9 H_7 N$

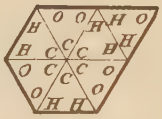
Taurine
$C_2 H_7 SO_3 N$



Acetone
$C_3 H_6 O$

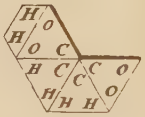
Oxalic Acid
$C_2 H_2 O_4$

Tartaric Acid
$C_4 H_6 O_6$



Citric Acid
$C_7 H_8 O_7$

Malic Acid
$C_4 H_6 O_5$



Succinic Acid
$C_4 H_6 O_4$

Butyric Acid
$C_4 H_8 O_2$

Crotonic Acid
$C_4 H_6 O_2$

Angelica Acid
$C_5 H_8 O_2$

Valeric Acid
$C_5 H_{10} O_2$

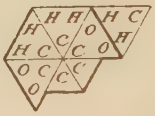
Pyrogallol
$C_6 H_6 O_3$

Quinone
$C_6 H_4 O_2$

Resorcinol
$C_6 H_6 O_2$

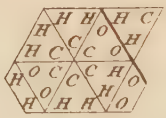
Phenol
$C_6 H_6 O$

Salicylic Acid
$C_8 H_6 O_3$

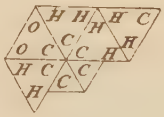


Protocatechu Acid
$C_7 H_6 O_4$

Benzoic Acid
$C_7 H_6 O_2$

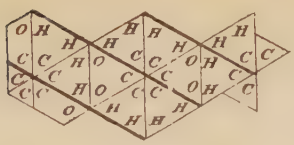


Quinine Acid
$C_7 H_{12} O_6$



Spirea Acid
$C_7 H_8 O_2$

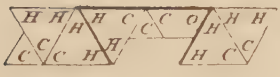
Specific Distillation Products of Cellulose



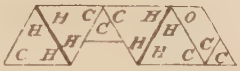
Coeralignon
$C_{16}\ H_{16}\ O_6$

Creosote
$C_8\ H_{10}\ O_2$

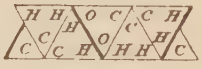
Oxyphen Acid
$C_6\ H_6\ O_2$



Phlorol
$C_8\ H_{10}O$



Paracreosote
$C_7\ H_8\ O_2$



Guyacol
$C_7\ H_8\ O_2$

Acetic Methyl Ether
$C_3\ H_6\ O_2$

Methyl Alcohol
$CH_4\ O$

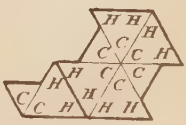
Methane
CH_4

Industrial Products

Alcohol
$C_2\ H_6\ O$

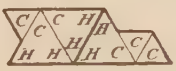
Ether
$C_4\ H_{10}\ O$

Chloroform
$C_2\ H_2\ Cl_3$



Xylene
$C_8\ H_{10}$

Petroleum Benzene
$C_6\ H_{14}$



Brown Coal Benzene
$C_6\ H_6$

Hard Coal Benzol
$C_6\ H_6$

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